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ABSTRACT

This guide focuses on appropriate techniques for the evaluation of electronic media educational programs. Such evaluation helps to provide the educator with the feedback that is missing whenever there is no direct contact with students, and also with information on the relative worth of an educational program. The four-part publication includes: (1) a statement of purpose and a description of radio and television as educational delivery systems with emphasis on their use by the Cooperative Extension Service; (2) a brief review of evaluation systems as applied to education, with a discussion of some of the evaluation models that may be applied to electronic media educational delivery, and a recap of several evaluations of educational television; (3) a practical approach to the evaluation of electronic media delivery of extension programs with a detailed discussion of each of the phases of evaluation, plus a section on implementing the evaluation; and (4) a summary of evaluation as applied to electronic media with a checklist to serve as a guide to the evaluator. Appendices contain sample forms and examples of evaluation reports. Thirty-six references are listed.(Author/LMM)

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A Guide for Evaluation of Broadcast Radio and Television in the Delivery of Informal Education

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COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF ALASKA, USDA & SEA GRANT COOPERATING

March, 1982

This guide was developed as a tool for those using radio and television to provide informal education to people in a non-credit setting. Since Cooperative Extension educators frequently use mass media as delivery systems, much of the material is related to the needs of Extension workers. The guide was developed in partial fulfillment of the requirements for an interdisciplinary Master of Arts program in Mass Media Education at the University of Alaska.

James A. Smith, Information Specialist and Editor
Cooperative Extension Service
University of Alaska

The University of Alaska's Cooperative Extension Service programs are available to all, without regard to race, color, age, sex, creed, or national origin.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U. S. Department of Agriculture, Dr. James W. Matthews, Director, Cooperative Extension Service, University of Alaska.

A Guide for Evaluation of Broadcast Radio and Television in the Delivery of Informal Education

A
Graduate Project

Presented to the Faculty
of the
University of Alaska
in partial fulfillment of the requirements
for the degree of

Master of Arts

by
James A. Smith, B. S., M. S.
Fairbanks, Alaska
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Abstract

Evaluation of Electronic Media Educational Programs by Extension Educators

Educational evaluation is a systematic process of collecting data and providing information to support decisions regarding the relative worth of an educational program. Evaluation of electronic media educational programs is especially important because it also provides the educator with the feedback that is missing whenever there is no direct contact with students. This publication is divided into four parts: (1) A statement of purpose and description of radio and television as educational delivery systems with emphasis on their use by the Cooperative Extension Service. (2) A brief review of evaluation systems as applied to education, with a discussion of some of the evaluation models that may be applied to electronic media educational delivery, followed by a recap of several evaluations of educational television. (3) A practical approach to evaluation of electronic media delivery of Extension programs with a detailed discussion of each of the phases of evaluation, plus a section on implementing the evaluation. and (4) a summary of evaluation as applied to electronic media with a checklist to serve as a convenient guide to the evaluator. The appendices contain sample forms and examples of evaluation reports.

Evaluations should be planned as part of the overall program with data collection systems and the audience for the evaluation firmly in mind. Measurable objectives are a critical part of evaluation. Determine the data requirements and develop data collection methods before the project begins. Use all practical measures, including closed circuit showings, diaries, and surveys, utilizing random sampling techniques whenever possible. Keep accurate and complete records of the total process to measure efficiency as well as effectiveness. Analyze data in a manner that will provide a base for decisions for the audience to whom the evaluation is directed. If the evaluation is centered on the needs of the individual educator, with proper planning, the information required for other levels of administration and interest can be met also.

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Introduction

PURPOSE

Noncredit, informal education is a process for providing information and educational services to the public by an institution of higher education without the formal requirements of registration, long-term commitments and degree-seeking orientation that characterizes most higher education programs. The concept that the results of university research and the knowledge base that exists on university campuses should be directly available to the public has its basis in the Morrill Land-Grant College Act of 1862 during Abraham Lincoln's administration.

Through the Smith-Lever Act of 1914 the body of knowledge at the land-grant universities was further extended to the public away from the campuses. Section 2 of the Smith-Lever Act as amended June 23, 1972 states:

> Cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics and subjects relating thereto to persons not attending or resident in said colleges in the several communities, and imparting information on said subjects through demonstrations, publications, and otherwise and for the necessary printing and distribution of information in connection with the foregoing; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the State agricultural college or colleges or Territory or possession receiving the benefits of this act.[1]

Although the Act does not specifically name radio and television as delivery systems, the Cooperative Extension Service has been a pioneer in using these electronic media in fulfilling its charge to provide practical information to the people of the United States wherever they might live.

As the use of these mass media delivery mechanisms has increased and improved, the need to measure and document the efforts expended and their effects on the audience toward which they were directed has been recognized by communicators in the Cooperative Extension Service and by administrators at the state and federal levels. Communicators and educators are concerned with the development of programs that do a better job of providing educational materials to the people which, in turn, help them to improve their health, economic situation, and general quality of life. Administrators share these concerns, but also are faced with the task of defending their organizations and with the need to make decisions regarding the future of programs.

[1]U. S. Congress, *Smith-Lever Act* of 1914, amended June 23, 1972, 7 U.S.C. 341 et. seq., Sec. 2.

Although Extension has been concerned with program evaluation since 1958[1], and evaluation of education in the general sense has been developing concurrently, the discipline of evaluation is still young when compared with most social sciences and much remains to be learned concerning techniques to be applied to specific educational situations. The area of noncredit, informal education as delivered by broadcast radio and television is such an area.

There have been a number of successful evaluations of electronic media delivered educational programs, but there is no known evaluation process that addresses directly the problems and potentials of informal, noncredit education as is delivered by the Cooperative Extension Service utilizing radio and television. The lack of direct contact between teacher and student complicates the difficult process inherent in the evaluation of any educational program. It is difficult to determine who is receiving the materials and especially difficult to determine what changes result from exposure to those materials. Moreover, program delivery by electronic media requires the use of sophisticated equipment and highly trained personnel. The efficiencies of the production and delivery process may vary widely depending on the equipment and the human factors involved in melding the science of the equipment with the art of program development and production.

This publication is an attempt to document some of the techniques that seem appropriate for evaluation of electronic media delivery of programs developed by the Cooperative Extension Service and to develop a practical scheme for evaluation of these delivery systems by individual extension workers who are producing and delivering the materials. The objective is to provide Extension workers who develop and deliver educational programs via radio and television with sufficient information and guidelines to design an evaluation appropriate for their situation.

This publication is divided into four parts. The first includes this statement of purpose and a description of radio and television as educational delivery systems with emphasis on the use of electronic media by the Cooperative Extension Service. The second section includes a brief review of evaluation systems as applied to education, with a discussion of some of the evaluation models that may be applicable to electronic media educational delivery, a recap of several evaluations of national educational television programs, followed by a review of evaluations carried out by the Extension Service. The third section will describe a practical

[1]U. S. Department of Agriculture, "Six Keys to Evaluating Extension Work." PA-371, (Washington, D.C.: Science and Education Administration, U. S. Department of Agriculture, 1958)

approach to evaluation of electronic media delivery of Extension programs. Each of the phases of evaluation appropriate to electronic media delivery will be discussed in some detail with emphasis on creative application to a specific evaluation problem. The summary is the final section. Included is an evaluation checklist to serve as a convenient guide for the Extension worker. The appendices contain sample forms, reports and procedures applicable to electronic media evaluations.

DEFINITIONS

BROADCAST RADIO. The wireless transmission of audible messages from a radio station to receivers within the range of the station's transmitters or transmitting system. This term is used specifically herein to refer to a medium for the transmittal of educational messages to individuals who receive them via home, car or portable radio receivers.

BROADCAST TELEVISION. The wireless transmission of audible and visual messages from a television station to receivers within the range of the station's transmitters or transmitting system. Specifically, this term refers to a medium for transmittal of an educational message to receivers controlled by individuals. Cable systems where subscribers have access to educational systems on a free choice basis are included. The term broadcast television as used herein does not apply to educational delivery systems where participants assemble in one or more locations for the specific purpose of participating in an educational experience. The use of radio and television as media for the delivery of noncredit, informal educational materials is characterized by delivery over a wide area to individuals who can receive the programs at home or a place of business rather than at a site specifically selected for receipt of the materials.

NONCREDIT, INFORMAL EDUCATION. The delivery of educational materials to the public on demand, usually outside the traditional higher education classroom setting, with no requirement for long-term commitment to an established program of study involving the awarding of secondary or postsecondary credits or degrees. Educational materials usually have direct and immediate application to a problem, situation or need the participant wishes to address.

COOPERATIVE EXTENSION SERVICE. A cooperative program established by the Smith-Lever Act of 1914 between the U. S. Department of Agriculture and land-grant universities in each of the states and territories. The Extension Service is designed to extend the knowledge and research of the land-grant universities to the people of the United States. This system provides practical information in

agriculture, natural resource development, community resource development, home and family living and through 4-H and youth programs to people wherever they live and in a form that is readily usable. The Cooperative Extension Service utilizes a variety of delivery systems including home visits, office visits, telephone calls, workshops, meetings, newspaper articles, newsletters, publications, audio-visual materials, fair displays, volunteer leaders and clubs, and home study courses, as well as radio and television as a means of providing information to large numbers of people throughout the nation with little or no expense to those who choose to participate.

EDUCATIONAL EVALUATION. A systematic process of collecting data and making decisions about the relative worth of an educational program. According to LaVerne B. Forest, "evaluation occurs when we have (1) collected evidence, (2) set criteria, and (3) made judgments as to whether the evidence fulfills the criteria."[1] Evaluation may determine who participated in a program, what the impact of the program was and how the program may be changed to increase the effect of the program as a change agent. Evaluation may also be the process of describing a program and determining what can be done to make it fulfill the needs of its clients more completely or to reduce its cost. Evaluation provides information for decision-makers at all levels, including the individual educator, the public, Extension administration, county administration, university administration, state administration, and federal administration.

RADIO AND TELEVISION AS DELIVERY SYSTEMS FOR THE COOPERATIVE EXTENSION SERVICE.

The Extension Service has been using radio and television for many years. KSAC, the voice of Kansas State University began broadcasting in 1924.[2] WPTF in Raleigh, North Carolina began Carolina Farm Features in 1935. Each broadcast included a six to eight minute segment prepared by specialists and others at the State University.[3] For many farm families the day still begins with the weather report and the farm program on the local station. Although many stations in agricultural areas have their own farm broadcasters, many of them rely heavily on information obtained from the Extension Service. However, programs by

[1]Speech by Dr. LaVerne B. Forest, Associate Professor of Program and Staff Development, University of Wisconsin Extension Service, Madison, Wisconsin, given at University of Alaska, Fairbanks, Alaska, October, 1977.

[2]Kansas State University, *Kansans' Right to Know: 108 years of Extension Education*, (Manhattan, Kansas: Cooperative Extension Service, Kansas State University, 1976), p 3.

[3]William L. Carpenter, *Let the People Know*, (Raleigh: North Carolina Agricultural Extension Service and the N. C. Agricultural Experiment Station, 1978), p. 40.

Extension agents seemed to be accepted readily only on rural stations. Urban stations often would not permit Extension agents to have programs because their voices were "untrained," while rural stations eagerly sought Extension programs in spite of their shortcomings.

In a 1963 survey, ten Extension educators from each of seven states were rated by panels on their radio performance. They averaged out somewhat above satisfactory on message content, message treatment and the image projected. They averaged out somewhat less than satisfactory on voice characteristics. The most urgently needed areas of improvement were related to voice characteristics. There were problems of animation, smoothness of delivery, inflection, enunciation and breath control. The conclusion was that agents need specialized training in radio delivery.[1]

A 1974 study indicates that 32 states responding to a questionnaire had a total of 65 radio specialists who worked full or part-time at promoting the use of radio by Extension workers in their respective states.[2]

Television was highly touted in the '50's and '60's as the answer to the problems of informal education dissemination and Extension workers embraced the medium ecstatically. Iowa State College was the first educational institution to establish a television station. North Carolina State College set up a television section in their Department of Agricultural Communication in 1952 and began assisting commercial stations with farm programs.[3] In 1954 ten land-grant institutions were among the 55 educational institutions and agencies operating or planning to operate their own television facilities.[4] A 1953 USDA handbook proclaims the advantages of television for Extension agents.

> "Television for you is more efficient because it reaches more people with a single effort on your part...reaches many people you have never reached before. Television...provides a method of teaching by which people learn quickly and remember what they have seen and heard. Television...is not difficult. JUST BE YOURSELF.[5]

[1]Darcie Byrn, Joe Tonkin, *County Agent Radio*, Pub. No. ESC 553, (Washington, D.C.: U. S. Department of Agriculture, 1963), p. 35.

[2]Pete Chimsri, et al, *Characteristics, Roles, and Training Problems of Agricultural Extension Radio Specialists in the United States.* (Knoxville, Tennessee: Agricultural Extension Service, The University of Tennessee, 1974), p. 2.

[3]Carpenter, p. 112

[4]Edward Danforth Eddy, Jr. *Colleges for Our Land and Time*, (New York: Harper and Brothers, 1957), p. 248.

[5]Joseph D. Tonkin, Alice F. Skelsey, *Television for You, A Handbook for Extension Agents*, Agriculture Handbook No. 55, (Washington: U. S. Department of Agriculture, 1953)

Kansas Cooperative Extension Service reported in the mid-1970's (no date on report) that they had daily television programs on three commercial stations and their affiliates for more than 10 years. A survey indicated that 48% of their respondents had their first contact with Extension through television. Of those who watched Extension programs, 66.8% viewed programs two or three times a week.[1] A 1974 study in Wisconsin indicated that 77% of AM, 57% of FM, and 52% of TV stations provided general agriculture and market news.[2]

Nearly all of the 50 states now have some form of radio and television delivery within their Extension Service or in its parent division of the state land-grant university. Some of them have simple production facilities, others have sophisticated production facilities while still others rely on commercial and public stations. Many states have developed innovative approaches to electronic media as delivery systems. Utah State Extension Service has been using a monthly statewide television program featuring Extension and research faculty followed by a statewide staff teleconference to train staff and keep them current. This program has been in operation since 1970.[3]

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[1]Cooperative Extension Service, Kansas State University, *Television is an Effective Tool in Extension Education*, (Manhattan, Kansas: Cooperative Extension Service, Kansas State University, n. d.)

[2]Eugene A. Kroupa, and Douglas K. Walker, *Wisconsin Radio and Television Agricultural Market News Programming*, R2615, (Madison, Wisconsin: College of Agriculture and Life Sciences, University of Wisconsin-Madison, 1974), p. 4.

[3]Interview with Arthur Higbee, Manager, Statewide Radio and Television Programs, Utah State University, Logan, Utah, at Western Region B meeting of Agricultural Communicators in Education, Las Cruces, New Mexico, October 18, 1981.

Evaluation in Mass Media Education

THE DEVELOPMENT OF EVALUATION AS A DISCIPLINE

Formal evaluation as a systematic process was applied to programs for economic and social development in the mid-1950's. Dr. Samuel P. Hayes developed an approach to evaluation for UNESCO in 1956. His revised book, published in 1966, summarized the process this way:

> The logical process of identifying (and measuring) the changes that occur and then attributing them to a development project may be outlined as follows:
>
> Step one. Describing the development project and specifying the changes which are its goals.
>
> Step two. Deciding which data to use to indicate changes in the directions desired (and also to indicate side-effects).
>
> Step three. Collecting the data—before, during and after.
>
> Step four. Analysing and interpreting the findings, and reviewing these with interested groups.[1]

Hayes emphasized the need for clear objectives: "It is obviously helpful to state with some precision just what the project is to accomplish. . .it is usually desireable to point up those changes that are objectively measurable by methods which can be duplicated by others.[2]"

Hayes placed considerable emphasis on data collection. He suggested using available data, requesting organizations to keep additional records, making observations of the effects of activities, and asking people about projects and results. He also stressed that data should be collected before, during, and after the project, with particular emphasis on baseline data.[3]

The final step outlined by Hayes is analyzing and interpreting the findings. He suggests using either a control group or using the larger population as a group against which project changes can be measured.[4]

He made the following case for better information about projects:

> If better indicators of project results can be obtained, they will produce the following direct benefits: better guidance for the community affected, for the expert, for the administrator, and for the responsible organization. Moreover certain indirect benefits are

[1]Samuel P. Hayes, Jr. *Evaluating Development Projects*, 2d ed., rev., (Paris: United Nations Educational, Scientific and Cultural Organization, Paris, 1966), p. 18.
[2]Ibid. p. 22.
[3]Ibid. p. 31-80 passim.
[4]Ibid. p. 81.

> also worth noting here: clarification of goals (which is a prerequisite to the appraisal of results), a better morale of all engaged in development because a better understanding leads to more realism in expectations and so to less disappointment, more relevant reporting in normal administration and more realistic development of science and teaching.
>
> One of the fears often expressed about any effort to get better data on project results is that it may divert time, energy and funds away from operations. The fact is, however, that well planned record keeping and collection of other data may reduce total administrative costs and increase the efficiency of administration. Current records of operations are essential for good management. Concise summaries of objective data on results are far preferable to the descriptive (and often discursive) reports frequently prepared. They reduce administrative costs relative to results.[1]

As the federal government became involved with financial support of education in the 1950's, the need became apparent for formal evaluations of educational programs. The Elementary and Secondary Act of 1965 spelled out the requirements. Two of its five titles required evaluations with the results to be reported to the government. This meant that thousands of local educational programs under Titles I and III were to be evaluated if they were to continue receiving funding.[2]

Further impetus for development of an effective process for evaluation followed as funds for education became tighter and citizens became more vocal in questioning the efficacy of our educational systems. Money continued to be a motivating force as more and more funding systems required evaluations.

Gradually, over the past few years a body of information has developed through the efforts of a mere handful of workers in the evaluation field. Michael E. Scriven and Robert E. Stake were some of the first writers to begin addressing evaluation as a discipline.[3] Much of the written work, however, deals as much with the problems that are yet unsolved in this young discipline as it does in setting out how to successfully evaluate programs.

Egon G. Guba, one of the leaders of the evaluation movement, made this indictment of the discipline:

> When the evidence produced by any scientific concept or technique continually fails to affirm experimental observation and theory arising from that observation, the technique may itself appropriately be called into question. . . . evaluation as we know it has failed, and that the world of evaluation does require reshaping.[4]

---

[1]Hayes, p. 90, 91

[2]W. James Popham, *Educational Evaluation* (Englewood Cliffs, N. J.: Prentice-Hall, 1975), p.2.

[3]Ibid. p. 5

[4]Egon G. Guba, "The Failure of Educational Evaluation," in Carol H. Weiss, (Ed.) *Evaluating Action Programs: Readings in Social Action and Education,* (Boston: Allyn and Bacon, 1972) p.251.

Guba cited the following clinical signs that evaluation was a failure in 1969:

1. Avoidance—nobody does it unless forced to.
2. Anxiety—stemming from the ambiguities of the evaluation process
3. Immobilization—schools have not responded in any meaningful way.
4. Vague guidelines—offer little operational assistance to the proposal developer.
5. Misadvice—experts seem unable to design evaluations that meet their own criteria.
6. No significant differences—seems incapable of uncovering any significant information.[1]

After ten additional years, many of the same problems still seem to be present. A considerable body of knowledge has been developed in that time, but evaluation is still a very young discipline. New approaches to evaluation and new applications are being reported every day. However, education is a very large field and a need still exists to adapt evaluation processes to specific educational situations.

Evaluation Models

Many evaluation models have been developed that may be applied to Extension media programs. I will review only those that seem to be most applicable.

A model that appears to be useful and practical is Stufflebeam and Guba's CIPP (Context, Input, Process, Product), model. This model documents the entire process of development and presentation of a program. The evaluation begins with a description of the *Context*. This phase of evaluation lists and describes funding agencies, the structure of the producing agency, the needs of the proposed audience, delivery systems available, and objectives of the program. This type of evaluation provides the background for development of proposals and can be the basis for development of an electronic media program to support a broader educational program.

The second phase of evaluation included in the CIPP model is the *Input* evaluation which describes what is needed to produce an effective program. This evaluation describes resources currently available as well as what may be needed to make a program successful.

The third phase of evaluation describes the *Process* of the program once it is in operation. This evaluation documents the successes and failures of the program throughout the lifetime of the project. Included will be the problems, the ideas that didn't work, the changes in personnel as well as the parts of the program that went well. This type of evaluation can be of great assistance to future program developers.

[1] Ibid. p. 251-253.

The fourth phase is what most people think of when they think of evaluation: *Product* evaluation. The aim is to measure the attainments of the program, not only at its conclusion, but also during the program.[1]

The CIPP Model seems particularly appropriate for a grant-funded program where a conscious decision is made to seek funding for a program. The context and input phases provide an organized approach to proposal development and the seeking of the necessary inputs required to produce a successful program. Final outcomes of the program are also well-documented under this model.

A major distinction between two classes of evaluation seems to be accepted by most evaluation practitioners—formative evaluation and summative evaluation.This concept was set forth by Scriven,[2] but is referred to in several of the models. He visualized evaluation as fulfilling two major purposes: (1) evaluation for decision-making and (2) evaluation for accountability. In Stufflebeam's view each of his four phases of evaluation under the CIPP model can be used to fulfill both of the above purposes. The main difference lies in the use of the results and the way they are interpreted. Formative evaluation is used to improve the product and process, whereas summative evaluation is used to determine whether the program produces the product it was designed to produce and whether it is worth the costs in money, time and resources.

Other models in current use include the CSE model named for the Center for the Study of Evaluation, University of California, Los Angeles, which includes four stages: (1) needs assessment, (2) program planning, (3) formative evaluation, and (4) summative evaluation.[3] In some ways this model meshes quite closely with the program planning process and reporting system of the Cooperative Extension Service. In the first phase, *Needs Assessment*, the needs of the community and area are determined and goals are developed. At this stage national and state goals are considered and specific objectives are developed. In the *Program Planning* phase, plans are developed to provide educational experiences to meet those objectives. At this time plans should be laid for the evaluation of the program. Unfortunately, these plans are often neglected. The *Formative Evaluation* phase measures how efficiently the program is conducted. This phase is comparable to what Stufflebeam and Guba refer to as "process evaluation.[4]" Also, in the *Formative Evaluation* phase, data is collected and shared for improvement of the

[1]Popham, p. 34-36.
[2]Michael E. Scriven, "The Methodology of Evaluation" in Carol H. Weiss, (Ed.) *Evaluating Action Programs: Readings in Social Action and Education,* (Boston: Allyn and Bacon, 1972) p. 126.
[3]Popham, p. 37.
[4]Ibid. p. 35.

program. Often, formative evaluation aids in conceptualizing what the program is and how it is working. *Summative Evaluation*, the fourth phase of the evaluation, looks at the total impact of the program. When a program has fully developed and is functioning as intended, it is ready to be judged. This judgment is made by the people who can determine if a program is to continue, to expand, to reduce costs, or to be used in other areas. Usually the evaluator in this phase does not participate in the project, but observes, collects data and attempts to produce a report that will be perceived as unbiased and applicable to the needs of his/her audience—those making decisions.[1]

Other models worthy of mention include the discrepancy model proposed by Malcom Provus. He defines evaluation as the process of defining program standards and determining whether a discrepancy exists between some aspect of program performance and the standards governing that aspect of the program. The discrepancy information is then used to either change performance or to change program standards.[2]

Constance McKenna sees the Provus model as appropriate for application to Extension programs. She translated Provus' model into what she termed "Extensionese." This is her description of Provus' model:

1. Decide which program to evaluate.
2. Determine objectives for the targeted program.
3. Plan the evaluation.
4. Follow through by implementing plans to collect information.
5. Identify discrepancies between program objectives and program accomplishments.
6. Plan what to do next...Either the basic program design standard or the performance should be revised so that objectives and accomplishments are consistent.[3]

The adversary model, which is patterned after the court approach to fact-finding, is another model that has been proposed. Two investigators prepare reports independently—one supporting the program and one seeking to find any faults. This approach may clarify the strong points and the disadvantages of a new program and present them in an easily grasped format.[4] However, Michael Quinn Patton feels that since each side of the issue is gathering data only to support its position, this approach precludes a comprehensive evaluation strategy.[5] He cites

[1]Lynn Lyons Morris and Carol Taylor Fitzgibbon, *Evaluator's Handbook*, (Beverly Hills: Sage Publications, Inc., 1978), p. 8, 9.

[2]Popham, p . 39.

[3]Constance McKenna, "Making Evaluation Manageable," *Journal of Extension* 19 (September/October, 1981): 9-13.

[4]Popham, p. 204.

[5]Michael Quinn Patton, *Qualitative Evaluation Methods*, (Beverly Hills: Sage Publications, Inc., 1978), p. 53.

an evaluation conducted in Hawaii using this model. The adversary approach was directed toward whether to keep a program or scrap it. As a result of the evaluation the decision was made to eliminate the program. Some of the evaluators felt that the program could have been improved, but there was no opportunity to present this information within the adversary model.[1]

A frequent complaint of evaluators is that their work and their reports often go unheeded. Michael Quinn Patton has developed a model he calls the "active-reactive-adaptive process" of program evaluator interaction. His model is described also as "utilization-focused evaluation."

Patton stresses the need to meet the requirements of the person or persons for whom the evaluation is intended. The evaluator must know who will be making decisions in six months and make sure they feel it is their study, that the ideas are their ideas and that it is focused on their values. He also feels that it is extremely important to identify and focus on the relevant evaluation question. The right evaluation question has the following characteristics: (1) It is possible to bring data to bear on the question. (2) There is more than one possible answer to the question, i.e., the answer is not predetermined by the question. (3) The identified decisionmakers want and need information to answer the question for themselves and not just for someone else. (4) The decisionmakers have a plan of action for using the answer to the question.[2]

All of the many currently accepted models are concerned with a program from the time of its conception to the final outcome. The models are not only concerned with the usefulness and the worth of the final product, but also with how well the project as a whole was conducted.

Most of the models are designed for the independent evaluator and are concerned with the relationships of the evaluator and staff and with the program administration. Only in rare instances on a national level and almost never at the state level have independent evaluators been hired to evaluate Extension programs. Also many of the models seem to be more concerned with short-term programs that have discrete ending and beginning points. Nearly all of the models have some points applicable to the Extension educational situation, but the Center

[1]Michael Quinn Patton, *Utilization-Focused Evaluation*, (Beverly Hills: Sage Publications, Inc., 1978), p. 78-81.

[2]Ibid. p. 84, 85.

for the Study of Evaluation, (University of California at Los Angeles), (CSE), model appears to match more closely the educational planning process currently in effect in Extension throughout the nation.

Each year each professional Extension educator considers the needs in his geographic and subject matter area and prepares a situation statement or *Needs Assessment.* Long and short-term objectives are developed supporting statewide goals agreed upon annually by all faculty. Learning activities are then planned to achieve these objectives which corresponds to *Program Planning*. Finally, reports on results and accomplishments are prepared at the close of the fiscal year. These reports resemble to some degree the reports developed as a result of *Summative Evaluation*, but also contain elements of *Formative Evaluation* as well, because most Extension program last for more than one year and the data can be used to improve the next year's program. However, the evaluation process is not planned as part of program planning and a more rigorous approach to data collection and analysis is required to adequately evaluate electronic media educational delivery systems.

Evaluation in the Extension Service

Evaluation of Extension programs was a concern for Extension educators long before the public school systems became involved with evaluation. In 1958, a U. S. Department of Agriculture pamphlet outlined six keys to evaluation. They were: (1) Identify measurable objectives, (2) define the audience, (3) obtain a representative sample, (4) obtain evidence by appropriate means, (5) use unbiased collection methods, and (6) make decisions regarding analysis and data use at the outset.[1]

The State Extension Management Information Management System (SEMIS) was planned to provide evaluation data on Extension activities and contacts on a national level. However, on the local level many Extension educators have not found the data to be as useful as it could be in providing a basis for evaluating and making program decisions. Although the data gathered are helpful in planning the amount of time required for each program, based on past history, it is of little value in measuring either the efficiency or the outcomes of programs. Patton refers to this type of evaluation as "effort evaluation." It focuses on documenting the quantity and quality of activity that takes place. According to Patton, asking about the activity of a program is one step up from asking if a

[1]U. S. Department of Agriculture, "Six Keys to Evaluating Extension Work." PA-371, (Washington, D. C.: Science and Education Administration, U. S. Department of Agriculture, 1958).

program exists. An effort evaluation establishes the level of program activity by observing the degree to which inputs are available and operational.[1]

The SEMIS system is part of the Extension program planning process which requires each educator to prepare a set of educational plans which direct his/her efforts for the coming year. The plan calls for a situation statement,ora needs assessment, long range goals and annual objectives. It requires the educator to describe the educational activities planned for the year and relationships with other Extension faculty members. At the end of the year the form is completed by reporting the accomplishments of the year and the progress toward objectives. However, although it is implied in the system, there is no direct requirement for the development of an evaluation plan as part of the overall planning process. There is also no formal requirement for an evaluation of the efficiency of the program nor is there any formal approach to program improvement through evaluation except as part of the annual report.

Advisory councils are often organized to assist with needs assessment and goal determination, but most of the input for needs assessment comes from the educator's personal knowledge in his/her geographic area and subject-matter specialty. Since educators work closely with clientele on a one-to-one basis, most of them develop a good feel for the needs of their area, but more concrete, quantifiable information is needed to provide a baseline in measuring the effects of programs.

The Extension Service, U. S. Department of Agriculture wants and pleads for quantifiable results that can be used in defending Extension programs in Congress. State Extension administrators and university leadership want the same kinds of information. Therefore, the aim of evaluation in Extension programs should be a more systematic, objective, ongoing process to measure the worth of programs and to communicate the information received to decisionmakers at all levels.

The need for "hard" data substantiating behavioral changes has been recognized by the Extension Service for several years. In 1975, Bennett described a hierarchy of evidence for program evaluation and listed hard and soft evidence at each of the seven levels. See Table 1. Bennett noted "the difficulty and cost of obtaining evidence of accomplishments increases as the hierarchy is ascended.[2]

The problem of obtaining hard data substantiating behavioral change as a result of programs appears nearly insurmountable for many individual Extension

[1]Patton, *Utilization-Focused Evaluation*, p. 164.

[2]Claude Bennett, "Up the Hierarchy," *Journal of Extension*, 8 (March/April, 1975): 10.

Table 1. Examples of "hard" and "soft" evidence in a hierarchy for program evaluation.

Levels	Examples	
	"Hard" evidence	*"Soft" evidence*
7. End results	profit-loss statements; life expectancies and pollution indexes	casual perceptions of quality of health, economy, and environment
6. Practice change	direct observation of use of recommended farm practices over a series of years	retrospective reports by farmers of their use of recommended farm practices
5. KASA* change	changes in scores on validated measures of knowledge, attitudes, skills, and aspirations	opinions on extent of change in participants' knowledge, attitudes, skills and aspirations
4. Reactions	extent to which random sample of viewers can be distracted from watching a demonstration	recording the views of only those who volunteer to express feelings about demonstration
3. People involvement	use of social participation scales based on recorded observations of attendance, holding of leadership positions, etc.	casual observation of attendance and leadership by participants
2. Activities	pre-structured observation of activities and social processes through participant observation, use of video and audio tapes, etc.	staff recall of how activities were conducted and the extent to which they were completed
1. Inputs	special observation of staff time expenditures, as in time-and-motion study	staff's subjective reports about time allocation[1]

**knowledge, attitudes, skills and aspirations*

[1]Ibid.

workers. Their primary charge is delivery of services, not evaluation. However, evaluation should support their primary mission of delivering practical, problem-solving information to the public. Systems must be developed to take advantage of resources available to individual Extension workers as well as to Extension education systems. Good evaluation always has a cost, but as Sara Steele stated, "It's essential to remember that evaluation is a tool and must return its cost from the way it helps better manage and improve programs and the way it helps your clientele get more results of greater value to them, their families, communities and society.[1]" Preferably, some of this return, should be made directly to the educator who is making the effort. Part of the system for evaluation of Extension programs already exists; completion and implementation of the system remains to be accomplished.

Evaluation of Electronic Media

Evaluation of electronic media is even more difficult than evaluation of programs that have personal contact. Difficult as it is to evaluate this kind of delivery system, evaluation is an essential element that can helpmake electronic media into an efficient and effective delivery system. The television or radio instructor is virtually blind to the effects of his/her teaching on students and potential students. Comedy shows use studio audiences to find out if the humor is working. Some instructors have tried to use live classes, but the complex production techniques of good educational television have interfered with the delivery to the students in the studio. Often, a second party, frequently the host of the show, is used as a surrogate audience, prompting the subject-matter specialist when required and asking the questions that one of the students might ask.

Groups that produce educational television programs for national public television have wanted answers to the same questions that Extension educators have regarding the effects of their programs on their intended audiences. A number of evaluations have been carried out, often with very substantial funding to answer these questions. Some of the techniques they have used have application to Extension electronic media program delivery.

Sesame Street Evaluation

By 1970 the need for objective evaluation of television as a teaching tool was evident. The Sesame Street Series which commenced in 1970 was probably the most ambitious program for teaching pre-school youngsters ever attempted. The

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[1]Sara Steele, "Emerging Concept of Program Evaluation," Journal of Extension, 8 (March/April 1975): p. 18.

series, produced by Children's Television Workshop and broadcast by Public Broadcasting Service, placed major emphasis on preparing children from minorities and disadvantaged homes for success in school. The funding for the project was very substantial, but, at the time, no one had any hard evidence to show that television was a viable medium for teaching this specific audience. The evaluation of the Sesame Street series conducted by Educational Testing Laboratories of Princeton, New Jersey, was an elaborate evaluation program developed to determine just what effects the series had on its target audience.

The evaluation began in 1970 with the goal of measuring the educational effects of Sesame Street on three-to-five year old children, particularly from minority ethnic groups and from lower socio-economic groups. A very elaborate summative evaluation plan was developed which included pretest and posttest parent questionnaires to determine what the home backgrounds were of the 943 children ultimately included in the evaluation. These children were from Boston, suburban Philadelphia, Durham, Phoenix and rural northeastern California. Pretests and posttests were administered in person by field workers who also observed the children as they viewed the programs. They also obtained estimates of viewing time and found out what teachers thought of the series. Content analysis of the programs was carried out to measure the amount of program time spent on each educational goal and the percentage of time particular television techniques were used to teach each goal.

Although the evaluation, as well as the program, was not without critics, the Sesame Street evaluations indicate what can be done to measure the effects of an electronic media presentation on its viewers. The evaluation concluded that children did indeed learn from watching the series. Sesame Street was found to be effective even for disadvantaged children who often did not do well in a traditional classroom setting.[1]

Most of us, particularly in the Extension Service, do not have access to a staff of field interviewers, test designers, and computer programmers to interview and analyze data from repeated interviews and test results from 1200 subjects, in addition to conducting a content analysis and a number of other data gathering processes, however, many of the techniques used in this evaluation, such as pre-tests, posttests, home interviews, and content analysis, can be adapted to our own situations.

[1]Gerry Ann Bogatz, Samuel Ball, *The Second Year of Sesame Street: A Continuing Evaluation*, 2 vols. (Princeton, N. J.: Educational Testing Service, 1971), 1: passim.

Carrascolendas Evaluation

Another educational series directed at a specific group of children was called *Carrascolendas*. This series was produced for Mexican-American children and was broadcast by Public Broadcasting Service. The goal of the series was to facilitate knowledge gains in first and second grade Mexican-American children and increase language usage skills in both English and Spanish.

The evaluation was conducted by Texas University Austin, Center for Communication Research. The primary evaluation was an in-school experiment which divided children into viewer and nonviewer groups. Secondary evaluations determined the number of schools using the programs in that part of Texas, plus a questionnaire delivered to teachers and a diary evaluation by selected teachers.

Children were selected for the in-school experiment by the following criteria: (1) Children must be representative of first and second grade Mexican-American children and (2) that they could be tested in a controlled environment. The experiment centered in an elementary school in Austin, Texas. Classes selected were taught by bilingual teachers as well as traditional classes taught all in English. Students were randomly selected from the classes for viewer and nonviewer groups. Eighty-eight students were selected. The viewer group consisted of 48 students and the nonviewer group contained 40 students. All were Mexican-American and bilingual to some degree.

Each child was interviewed for 35 minutes first by an interviewer that spoke only English and then in Spanish by a bilingual interviewer. The pretest interviews established the levels of competencies of each child. Children in the viewer group were then shown the films of the series. Children in the nonviewer groups participated in a photography activity designed to avoid adverse responses from parents of the nonviewing group. Each child was then interviewed at the end of the experiment in the same manner as at the beginning. The statistical analysis model included analysis of covariance which incorporated pre-test scores as a means of mathematically equalizing group differences which may have existed prior to viewing the series.

Evaluators noted that there was a significant difference for total knowledge scores for English tested items following the series. Significant differences were apparent on mean subtest scores for multicultural social environment, physical environment and cognitive development between viewer and nonviewer groups.

On Spanish-tested knowledge subtests, many of the scores of viewers appeared higher, but no significant differences could be noted at the .05 level of confidence. Viewing the program had a positive effect upon the child's fluency and single language consistency in speech. Positive effects were found to have generality across grade level and type of classroom.[1]

Although this series was broadcast to a large audience nationwide, the evaluators selected a small sample of the target audience and developed a controlled experiment to determine the effects of the series. This technique can be applied to many delivery situations. Although the experiment may not fully predict the effects of the series in an uncontrolled, natural setting, it does give good information upon which program development decisions can be made. This approach is especially useful for formative evaluation. Costs of this type of evaluation are far less than those of large sample surveys involving the general public.

Infinity Factory Evaluation

The *Infinity Factory* was an educational series designed to present mathematics in a common-sense way to children ages eight to eleven, especially black and Latino children. The series concentrated on decimals, measuring, including metrics, estimation, mapping and scaling, graphing, and problem-solving. It also addressed a set of cultural and ethnic goals that respond to special needs of minority children: (1) providing positive black and Latino role models, (2) reinforcing good feelings about one's group, (3) representing inner city environment positively, and (4) stressing humanistic perspectives of sharing, cooperation, equality and self-respect.

The evaluation study spanned ten weeks—one week for pretest, eight weeks for in-school viewing, one week for posttesting. The program was viewed in four cities. The sample consisted of 1000 students and their teachers in 39 third to sixth grade classes. The questions to be answered by the evaluation were: (1) Do the programs capture and hold audience? (2) Do programs and segments appeal to students? (3) Can students understand and follow story lines? (4) Does program series meet objectives in math content, attitudes toward math and social attitudes? (5) What are teachers' opinions of effectiveness and usefulness in classroom.

[1]Frederick Williams and Diana S. Natalicio, "Evaluating *Carrascolendas*: A Television Series for Mexican-American Children," (Austin, Texas: Center for Communication Research, Texas University: ERIC Document Reproduction Service, ED 062367, 1972), passim.

The evaluation consisted of two parts: (1) Examination of effectiveness of series as a whole through statistical analyses of pretest and posttest differences, subscales based on responses over eight programs and trends over eight programs. Analysis focused on student attention, appeal, comprehension of story lines, knowledge of math content, students' attitudes and teachers' attitudes. (2) Show-by-show analysis through descriptive reports on each program, analysis of student attention and appeal for students, teachers' opinions and numbers and kinds of related classroom activities.

Pretests were administered to students in classrooms. Teachers' attitudes were measured by semantic differential instruments. Trained observers visited each of the 39 classrooms and recorded eye contact and active responses for two groups of five students at 15 second intervals. Observers and students read through weekly response forms. Segments were rated as hard or easy, good or no good, fun or no fun. Also there were ten items on comprehension, knowledge of math content, attitudes toward math and social attitudes.

Teachers completed a 39 item questionnaire dealing with 11 areas: educational effectiveness, class preparation, program guides, use of language in programs, technical quality, student attention, program appeal, math content, math attitudes, and social attitudes. They were also encouraged to write comments, report any related activities and describe references to programs by students.

Following the eighth program, the knowledge and attitudes of students were measured again using the instrument used in the pretest. Teachers also completed the same semantic differential instrument and were asked open-ended questions.

Evaluation information indicated that the mean percentage of student attention was very high—91.3%. Student appeal ratings were also very high. Appeal ratings for Black and Latino students were higher than for non-target students. Younger students rated appeal of "City Flats" segment higher than older students. Girls rated overall appeal higher than boys. A comprehensive subscale of 24 randomly selected comprehension items taken from the weekly response forms indicated the percentage correct was 78%. Scores for target and nontarget audiences were comparable. All student groups showed significant gains in knowledge of math content. Older students improved more than younger students. Teachers' attitudes toward educational television improved significantly from pre-test to posttest.[1]

[1]Francis A. Harvey et al., "Evaluation of Eight *Infinity Factory* Programs, (Newton, Mass.: Educational Development Center, Inc.: ERIC Document Reproduction Service, ED 129329, 1976), passim.

Although the approach in this study was similar to that used to evaluate *Carrascolendas*, the sample was much larger and observation was added to the pretest-posttest design. The opinions of teachers were also considered in this evaluation. The observation of viewers and their reactions to a program would be appropriate for small group viewings in a formative evaluation. The questionnaire regarding the appeal of each section also has application in a formative setting.

Feeling Good Evaluation

The Public Television series, *Feeling Good*, was broadcast weekly in prime time from January to September, 1975. The series was produced by Children's Television Workshop and funded with $7,400,000 over a four-year period. The objective of the series was to motivate viewers to enhance their health and that of their families. The original programs were one hour long and consisted of a 20-minute major treatment, three five-to-ten-minute minor treatments, four one-minute "commercials" and 20 minutes of open, close and bridge materials.

Task forces of experts selected 11 priority topics and 70 behavioral goals for the series. Formative evaluations were conducted by an in-house evaluation staff and summative evaluation plans were developed in consultation with an outside research advisory committee, then contracted to four independent research contractors. A pilot program was presented to 1910 adults in 1974 to provide an initial formative evaluation of the series.

The audience for the first program of the series was rated by A. C. Nielson at 2.8 which was considered high for PBS prime-time programs, but later programs fell to 1.4. After the first 11 programs the show was revised and cut to one-half hour. The two parts of the series were then dubbed Season A and Season B.

A five phase evaluation plan was developed consisting of: (1) a large sample, multiple city panel study of voluntary viewing in natural settings; (2) a field experiment in a community with a good representation of low income and minority audience members; (3) a series of four national surveys to measure trends in awareness of the series, viewing and health behaviors; (4) a community monitoring study using unobtrusive institutional measures, such as type and frequency of visits to local health care centers, to cross-validate self-reports of series effects; and (5) national audience estimates for the series. The community monitoring study was undertaken, but not completed because of lack of access to necessary records.

A random sample of 22,120 television viewers from four cities were screened to permit stratification into 3 levels of likelihood of viewing. Mail surveys were used with 80% response. A baseline survey was sent to 5,063 people. Interim measures were sent to 518, 466, and 411, respectively. A Season B baseline survey was sent to 2,731 and a final posttest was sent to 3,709 respondents.

A field experiment with low income and minority audience members divided respondents into three treatment conditions. Respondents were:(1) induced financially to view entire series and be interviewed repeatedly; (2) induced financially to be interviewed repeatedly with no mention of series; and (3) no inducement and no mention of series.

The experiment included a baseline survey with 400 interviews, interim and Season A telephone interviews with 137 respondents, Season B telephone interviews with 309 respondents and final posttest interviews by telephone with 468 respondents.

Four national surveys of independent national samples of at least 1500 were conducted by the Gallup organization. National audience estimates were obtained using A. C. Nielson's standard national sample of 1200 homes with Audimeter. Data was obtained weekly. Nielson estimated 1,152,000 adults watched Season A. Season B was seen by 968,000. The series was seen by more viewers than two-out-of-three PBS prime-time programs.

Not all of the original goals for the series were addressed and not all of those addressed in the series were considered in the evaluations. However, 38 of the outcome measures indicated a significant effect. There was strong evidence of positive effects for ten of the behavioral goals and partial evidence of positive effects for 14 more. The cost of the series was about the same per viewer as many health pamphlets. The conclusion was that the series had a measurable effect on viewer behavior and cognition.[1]

The mutifaceted approach of this evaluation is an example of what can be done given virtually unlimited resources. However, the same types of evaluation can be applied on a smaller scale as well. Please note that mail surveys were used instead of personal interviews as was used for the Sesame Street evaluation.

[1]Keith W. Mielke and James W. Swinehart, "Evaluation of *Feeling Good,* Television Series," (New York: Children's Television Workshop, ERIC Document Reproduction Service, ED 134228, 1976), passim.

Telephone surveys were also used. The problem of obtaining a large enough sample of public and educational channel viewers, who usually represent less than ten per cent of total viewers, was remedied by paying a small sample to view the program and be interviewed. Instead of paying for a formal audience estimate, audience counts may often be obtained from broadcast stations or from telephone surveys conducted during a broadcast or shortly thereafter. It appears that the planning for the unobtrusive measures of health care must have been lacking or the study would never have been undertaken without checking to see if the data was available. It also seems apparent that additional formative evaluation and pre-broadcast experimentation was needed since the series had to be interrupted and restructured.

Television Evaluations by the Extension Service

At one time or another every state Extension Service in the United States and many foreign countries have attempted to find out how well their media educational programs were working. There have been surveys to find out where farmers get their information, what homemakers listen to, where children and youth learn. Data collection methods have ranged from casual observation to elaborate nationwide surveys. The Extension Service has conducted a number of evaluations worthy of note.

Mulligan Stew Evaluation

The *Mulligan Stew* film series, produced in 1972 by the National 4-H Council was broadcast nationally and used in schools to help youth acquire and apply nutrition knowledge, as well as increasing youth involvement in nutrition-related activities such as food shopping, and increasing the awareness of 4-H as a system for providing practical education for youth. This was one of the few cases that I am aware of where an outside group was asked to evaluate an Extension program. Abt Associates of Cambridge, Massachusetts conducted the evaluation in 1974. The evaluation involved 3000 4th, 5th and 6th grade students in six states. A pre/post experimental design was utilized with data collected a few days before and after children watched the series. Six experimental and control groups were surveyed.

The design was developed to address the question of whether the *Mulligan Stew* series was responsible for changes in nutritional behavior, knowledge, attitudes and an increase in awareness of 4-H. The effects of supporting materials were also assessed. The second type of control group was given only the post-test to rule out any effects of the testing program itself.

The tests were administered in the schools with the cooperation of the state Cooperative Extension Service and school teachers and administrators. Teachers were interviewed and so were state Extension educators. Cost data was collected and a content analysis of the film series was conducted to determine how much emphasis was given to each of the educational objectives.

The basic result of the evaluation was that the programs were effective in increasing the children's knowledge of nutrition and that it was more effective when shown in the school system than when broadcast. The content analysis noted that the puppets used as an attention-sustaining device did not effectively reinforce the main educational messages. It was also noted that the original objectives were very optimistic. They were also somewhat general and were not well-suited to providing a base against which the series could be measured to determine success

Table 2. Summary Description of Experimental and Control Groups

Treatment	No. of Youth	
1. Watched *Mulligan Stew* in school and used the Comic Book	539	
2. Watched *Mulligan Stew* in school, but without Comic Book	482	
3. Watched *Mulligan Stew* at home and used the Comic Book	398	
4. Watched *Mulligan Stew* at home, but without Comic Book	404	
Total Experimental Group Youth		1,823
5. Control Group I did not watch *Mulligan Stew* and did not use Comic Book; Tested pre- and post	375	
6. Control Group II did not watch *Mulligan Stew*, and did not use Comic Book; Post tested only	373	
Total Control Group Youth		748
Total Youth Analyzed		2,571

NOTE: Although more than 3,000 children participated in either the pretest or post-test, a number of children were dropped from the data analysis because they were absent when either the pretest or post-test was given.[1]

[1]Sydelle Stone Shapiro, et al, *An Evaluation of the Mulligan Stew 4-H Television Series,* Report No. AAI-74-120, (Cambridge, Massachusetts: Abt Associates, Inc. 1974), prepared for Extension Service, U. S. Department of Agriculture, p. 4.

or failure. Abt Associates developed the following criteria for assessing the value of the series after the evaluation was complete:

1. The impact of the series: positive changes in knowledge, awareness and selected behaviors in subjects who saw the program as compared with subjects who did not.
2. Cost factors: lower cost per child for the *Mulligan Stew* package compared with the cost per child for other 4-H programs.
3. Continuing interest: continued interest expressed by state 4-H staff, teachers, principals, and TV stations in additional 4-H TV programming.[1]

An independent evaluation of the same series was conducted by the Agricultural Extension Service, University of Minnesota. This evaluation was handled more like a research project. Three hypotheses were developed within a systems-based evaluation model that assumes that actors in various roles in the total system perform communications acts according to perceived expectations and actions of other segments in the system. A principal concern is the audience orientation of subsystems which include: (1) nutritional research and extension specialists, (2) state 4-H information specialists, (3) commercial and educational television station staffs, and (4) teaching staffs in schools.

The model concentrates on (a) evaluations of the the film and the expectations of audience reactions by members of each of the above subsystems, (b) institutional circumstances under which the programs were delivered and (c) measured reaction by the audience group.

Although this study does provide excellent research information about the ability of Extension people and broadcast station personnel to predict the success of a media program for a youth audience, it is not an evaluation in the strict sense of the term. It does not place a value on the project, measure its success or make recommendations for improvement or for the continuation of the project.[2]

Living in a Nuclear Age Evaluation

Another evaluation report was prepared following the presentation of the series, *Living in a Nuclear Age*. This series dealt with nuclear energy and power and was supported with kits of materials to be distributed to young people. The report describes the methods of delivery of the series in a four-state area and the audience counts and enrollments in 4-H projects. Nothing is reported concerning

[1]Ibid. p. 35

[2]C. N. Olien, P. J. Tichenor, G. A. Donohue, *A Systems Evaluation of a Purposive Message*, (St. Paul: University of Minnesota, 1975), passim.

behavior change in viewers. There is also nothing included on the process of development of the films or on any type of pretesting that may have been conducted. This evaluation was concerned only with contacts and activities.[1]

A survey of home economics TV programs conducted in 1971 reported that 29 states were producing programs at that time. Only nine states were conducting evaluations of their TV programming. Eleven states reported that they considered TV to be more effective than meetings, workshops, newspapers, publications and radio. It should be remembered, however, that the questionnaire was completed mainly by state personnel involved with television production.[2]

Evaluation is still a young discipline and the literature contains only a few examples of evaluations of broadcast radio and television used outside the classroom. One reason for the lack of articles on evaluation of projects is that, by its nature, an evaluation is not generalizable, but is specific to that project.

Conclusions from the Literature

The conclusions that can be drawn from the literature are these:

1. All phases of the project should receive some attention in evaluation. Priorities must be set as to which phases will receive major emphasis.
2. The evaluation should provide a direct return in improved teaching methods, better understanding of clientele and their needs, and adequate funding.
3. Data collection must be tailored to meet the exact needs of the specific evaluation.
4. Use as many evaluation measures as are practical, but keep the evaluation as simple as possible. In other words, avoid complex data collection methods if simple, straight-forward methods will provide the necessary information.
5. Use "hard" evidence of accomplishment whenever possible. Constantly seek to find evidence that a behavioral change has taken place.
6. Keep the audience for your evaluation report in mind. Give them something they can use as soon as possible.

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[1]National 4-H Service Committee, *Living in a Nuclear Age*, (Chicago: National 4-H Service Committee, 1973), passim.

[2]Clara Steier, "A Survey of State Extension Home Economics TV Programs," (St. Paul: University of Minnesota, mimeo, 1971), passim.

7. Be willing to assess the value of a program and make recommendations for change and improvement. Be willing to state honestly what needs to be done even if it hurts.

Reviewing the literature provides a basis upon which a practical plan for evaluation may be built. The following sections describe an approach that may be followed in developing specific plans for evaluating radio and television when used for program delivery in support of Extension educational programs.

The Process of Evaluation

From the models that have been reviewed the following is proposed as a process that might be applied to the specific problem of the evaluation of Extension programs delivered by radio and television. This approach is based on the CSE model described earlier, melded with the current Extension educational planning process. The situation statement on the Extension educational plan corresponds with the needs assessment phase of the CSE model. However, the development of goals and objectives is a separate step in the Extension process. It will therefore be treated as a separate topic. The next phase of the CSE model is termed program planning. In the Extension planning process this corresponds with the planning of educational experiences for the year. It will be referred to as program planning in this section. The Extension process requires an annual report of accopmplishments and progress toward objectives. The CSE model requires formative evaluation and summative evaluation. At this point we will follow the CSE model exclusively, but the reports from these evaluations will easily meet the needs of the Extension annual report.

Needs Assessment

Since Extension programs are designed to provide practical information and education that solves problems for people, needs assessment is nothing more than a systematic process of discovering what the major problems are that can be addressed by Extension educational programs. Once the problems have been identified, then objectives are formulated to satisfy those needs or at least to alleviate the symptoms.

Extension has developed a number of needs assessment processes that can and should be utilized. Advisory councils, if properly formulated, provide an excellent source of information regarding community needs as well as a sounding board for evaluation of program goals. Personal contacts with clientele as well as requests for information and publications also provide excellent information regarding interests, if properly documented. Agencies that deal with crises affecting people are also good sources of needs assessment information. Organizations of clientele groups, such as farmers' organizations or homemakers' clubs can also provide a broad base of information upon which situation statements may be developed. There is also a need for surveys of various types which supply baseline information to determine what the present status is and by which progress and change can be measured.

It is necessary to have an understanding of the media available for delivery of educational materials. Slides, film, video cassettes, audio cassettes, radio, newsletters, broadcast television, radio—all have their advantages and disadvantages and the medium should be selected to meet the needs of the clientele and to take advantage of the capabilities of the producing agency. Information on radio and television is available directly from broadcast stations, from satellite and cable systems, and from Extension information specialists. The *Broadcast Cable Yearbook*[1] which is available in many libraries lists the audiences in areas served by stations all over the United States and may be used to estimate the potential audience for a given station or group of stations. A knowledge of the information gathering patterns of the target audience is also necessary, but may be more difficult to measure objectively.

With limited resources, needs assessment data and baseline data are difficult to gather. However, many Extension programs continue year after year and data that were used for the evaluation for the previous year may serve as cumulative baseline data for the subsequent year. However, a tradition must be developed of continually seeking high quality, quantifiable information whenever an opportunity presents itself and by placing emphasis on the collection of good data.

Development of Objectives

Following the assessment of needs, goals and objectives are formulated that state what behavioral changes are expected to be produced in or by clientele. This step is more difficult than it appears to be. It is easy to write an objective in measurable terms. It is much more difficult to specify a change that is measurable and attributable to the program being evaluated. For example, it is easy to say that 50 new gardens will be developed in rural Alaska. It is more difficult to determine how many gardens there were at the beginning of the program and how many new gardens resulted from the educational program. Needs assessment should help to establish a baseline upon which programs can be established.

Measurable objectives are particularly critical to evaluation of mass media delivery. The objectives for electronic media educational efforts must support other segments of the total educational program, but should produce effects that are measurable apart from the rest of the program. Electronic media may be used to build enrollment in courses and to encourage the seeking of other educational materials. In these cases the electronic media efforts are clearly supporting the

[1]Broadcasting Publications, Inc., *Broadcasting Cable Yearbook* (Washington, D. C.: Broadcasting Publications, Inc.).

overall educational objectives, but more specific objectives should be written that clearly state what the electronic media will do and how it will be measured.

The *Program Evaluation Kit* developed by the Center for the Study of Evaluation suggests, "Start by looking at the program's objectives.[1]" Without clearly stated objectives, the evaluator must attempt what has been referred to as "goal-free evaluation[2]" wherein the evaluator looks at the outcomes of the program without the direction provided by program goals and attempts to devise measures that will determine what the effects of a program are. This is an evaluation approach that can be used only by an outside evaluator who does not know the objectives of a program, whether they are stated or unstated. For Extension educators, the objectives of a program are the keys to effective evaluation of the results of that program. A great deal of ingenuity is required in development of practical ways of measuring whether objectives have been met.

Examples of possible electronic media program objectives might include: "Generate 1000 inquiries to a special box number for a publication on agriculture," or "increase 4-H enrollment inquiries by 10% over the previous year." General Extension objectives may also be met through electronic media: "Increase the number of rural Alaskans aware of Extension by 25% over the previous survey." Objectives relating to changes in behavior or the adoption of new techniques are often more difficult to measure, but measurement is possible if electronic media programs are integrated into programs that make direct contacts.

Program Planning

As educational activities for a particular program are developed, delivery systems must also be developed. The decision to use electronic media as part of a program should be based on the nature of the audience to which the program is directed, the location of the audience, their information gathering approaches, the types of media available to the educator, the costs per contact for each medium and the nature of the message. Most educational programs will require the use of several channels to achieve measurable change in attitudes and behavior. The electronic media often may be used to make the general public aware of an idea or the solution to a problem and to make them aware of Extension programs

[1]Morris, Fitzgibbons, p. 8.

[2]Popham, p. 28.

available to help them solve their own problems. In other cases, the electronic media may be used in conjunction with other mass media— newspapers, billboards, flyers, even grocery bags—to change attitudes. Campaigns in support of agriculture or specific commodities have taken this approach. The mix of delivery systems should produce a total educational program that creates an awareness of the problem and possible solutions to the problem, leads people to seek additional information, and finally gives them enough depth and detail that they can apply the information to their specific situation.

EVALUATION PLANNING. Unless evaluation is an integral part of an educational program from the outset, it will probably never succeed in providing the information required for rational decisions for those developing and delivering programs. The evaluations described earlier were designed to measure whether the programs achieved the desired results and were carried out after program development was complete and the programs broadcast to the public. The Extension educator needs to know if a program is effective, but information for the improvement of programs is also important. Evaluation must be planned as the program is being planned if data is to be collected to serve the full range of evaluation needs. The educational planning process has been an institution in the Cooperative Extension Service for many years and has helped in developing effective educational programs. Evaluation has been expected to be part of the process, but explicit evaluation plans are not usually required as part of the educational plan. The evaluation plans should be stated along with the educational activities and experiences planned for the program. Please recognize, however, that evaluation that provides an information base to improve present and future educational programs and to provide funding agencies and decision-makers with the information they continually are seeking is not easy—nor is it free. Resources and time must be committed to the evaluation process. The needs for data must be determined, as well as the methods for collecting it, at a time when plans can still be made to obtain the data.

A successful evaluation system should provide information for decision-making on all phases of a program to the individual agent, to program leaders, to directors, to academic leaders, to local governments, to state government and to the federal government. All of these levels of decision-makers want specific types of information in order to insure that programs are efficient and responsive to the needs of their constituents. Less detailed information is required as decision-makers become further removed from the clientele of the program.

The ultimate decision-maker—the client and taxpayer needs to know that local programs meet his/her personal needs at a reasonable cost. He/she also needs to know that programs can be modified to meet his/her changing needs. The educator needs to know if educational programs are effective in meeting the needs of his/her clients and that the methods used are as efficient as possible in delivering the necessary information. The educator also needs to know that changes in attitude and actions of clientele are happening because of his/her efforts.

At successively higher decision levels, information can be summarized and combined to meet the needs of that level. The decisions at higher levels consist primarily of go—no-go or funding level decisions. These decision-makers are typically required to decide which of several programs should receive funding or support and at what level. They need to know what will best serve the majority of their constituents. They are progressively less concerned with individual educators and their interactions with clients and more concerned with how summarized results from several programs add together into defensible statistics.

The point is, that if the data collected meet the needs of the individual educator and his clients in determining if a program is effective and efficient, data will also be available for higher level decisions. This statement assumes that the objectives at all decision levels are compatible.

Problems develop when evaluation requirements are dictated by higher level decision-makers. Often educators blindly fill out forms with no thought to receiving input for their own use. They are merely meeting the reporting requirements of other levels of administration. This is exactly opposite to what should happen. A well-planned evaluation system should first meet the needs of the local educator. In most cases the data collected by the educator for a well-done local evaluation will also meet the data needs of higher levels. If the local educator, through state systems, is well aware of the data requirements at the state and national level, he/she can tailor the evaluation to also provide the required data at other levels.

Good evaluations are not done without cost in time and resources. This fact must be recognized in planning so that time and funds are budgeted. Data must be collected, recorded and summarized. Reports must be written and delivered to decision-makers. Time, computer costs and publication costs are typical of expenses involved. It may be necessary to utilize interviewers or other data collection agents who may be volunteers, but it may be necessary to pay for services or to offer gifts to encourage participation. Evaluation must be considered important enough to authorize reasonable funds for its conduct.

Formative Evaluation

"As a result of formative evaluation, revisions are made in the materials, activities and organization of the program. These adjustments are made throughout the formative evaluation period.[1]" Stufflebeam and Guba referred to this type of evaluation as "process evaluation.[2]" Since many Extension programs are on-going, but with changes in approach and delivery from year-to-year, formative evaluation should also be on-going, with some phases of a program being evaluated formatively each year.

When radio and television are used as delivery systems, the costs of production, in time and resources, are relatively high. The risk of producing programs that fail to fully achieve objectives is also high. Formative evaluation is designed to predict in some measure how well a program or series of programs will succeed at meeting objectives within budget and time constraints. If formative evaluation is done well these predictions will be accurate enough to avoid major problems that become evident at a point in the production cycle when it is too late for them to be corrected.

Formative evaluation begins at the outset of an educational program. Early in the planning stages program concepts should be reviewed by experts in the subject-matter area, from outside the organization, as well as within. Samples of targeted program recipients should be selected, at random, if possible, and interviewed regarding their interests and needs relevant to the proposed program content.

The content of each individual part of an educational program should be subjected to careful scrutiny. Scripts, production techniques, special effects, on-camera personnel, language and subject matter should be reviewed by specialists in the field and by representatives of the target audience. The evaluator may not carry out all of these checks and reviews, but should evaluate how well they are conducted. A pilot production may be an effective way to evaluate many of the above factors.

The formative evaluation process should be extended to the total program once the pilot program has been modified and accepted. Checks should be made throughout production to assure that quality remains uniform and that segments continue to meet program objectives. Adjustments should be made whenever necessary.

[1]Morris, Fitzgibbons, p. 12.
[2]Popham, p. 35

Close coordination with subject-matter specialists and field agents is imperative throughout the formative stages. Critical comments should be sought from them to assure that radio and television programs meet their expectations.

An important part of formative evaluation is to measure how efficiently the job was done in terms of time and money. Although usually considered part of formative evaluation or process evaluation, sometimes the record of how the project was conducted may be called program implementation evaluation, particulary if conducted after the program is completed. The CSE Evaluator's Handbook states,"Program implementation evaluation focuses on activities, materials, and administrative arrangements that comprise a program.[1]"

This type of evaluation consists of records regarding costs in time and money, combined with diaries and other anecdotal material that document the day-to-day progress of a project. A non-threatening climate must be established that encourages participants to document problems and successes. The temptation is always present to hide the problems and talk only about the successes. A non-punitive approach to problem treatment that requires detailed reports may help to document problems in a manner that will help to avoid similar problems in the future.

Although finances are not specifically the evaluator's responsibility, he/she should urge that adequate accounting systems for time and money be part of initial project plans. The implementation evaluation should give a complete picture of what it took in terms of resources to complete a project and what took place during its course.

At the close of the project it should be possible to say exactly what the project cost in time and resources. Any problems encountered should be described as well as processes that succeeded well and that should be repeated in subsequent projects. The evaluator should have access to sufficient data to make recommendations for improvement of the process of development of future projects.

Summative Evaluation

"The goal of summative evaluation is to collect and present information needed for summary statements and judgments of the program and its value.[1]" This evaluation is also referred to as product evaluation in Stufflebeam and Guba's CIPP model.[3] The results of summative evaluation are used to determine whether

[1]Morris, Fitzgibbons, P. 11.
[2]Ibid., p. 13
[3]Popham, p. 36.

or not to continue a program, or whether or not to reduce or expand a program. Frequently this phase of evaluation is carried out by an independent evaluator who represents the funding agency or the community at large.[1] The evaluator tries not to interfere with the operation of the project. Ideally, the evaluator also has not been involved with the project, permitting a degree of independence and detachment, enhancing the credibility of the evaluation report. Frequently, however, the Extension educator will be required to be evaluator as well as project participant. The educator turned evaluator should mentally maintain the same detachment and report negative as well as positive findings. The evaluator should step aside from his educator role and produce an accurate description of the program, including measures of its effects.

The summative evaluation process may be divided into five phases: (1) Decide what needs to be known and by whom, (2) select appropriate measures, (3) collect data, (4) analyze data and, (5) prepare an evaluation report. The written report, produced as a result of the evaluation, provides information for decision-makers who decide the future of the project. The report also documents for the funding agency that services promised have been delivered, as well as providing a permanent record of the program. The report may also serve as a planning document for anyone who wants to continue or duplicate the program or adapt it to a new setting.[2]

Implementing the Evaluation

Overview. There are many aspects to every educational program and there must be many measures to provide a complete picture. In evaluation, many of the measures will not be fully validated, therefore, many measures will be required to avoid being misled if one measure proves to be inaccurate.For example, some measures provide objective data on how many people participate and which changes in behavior are the result of the program. Other measures provide subjective data on how well people like the program and what they would like to see changed. An integration of these two classes of measurements is required to fully describe the program.

Volunteered anecdotal data, while they may reveal significant ideas or feelings, may also be biased because the respondent may wish to tell you what you want to hear. Such bias can be minimized by the manner in which responses are

[1]Morris, Fitzgibbons, p. 9

[2]Ibid. p. 69.

sought. Since critical comments may be of more value than compliments, especially in the development stage of a program, a climate should be developed that invites candor. These kinds of comments are important because they may be the only personal feedback the educator gets. At best, participant comments are a poor substitute for the interpersonal communication that takes place between a teacher and his/her students in the classroom. Therefore, every effort must be taken to obtain as many comments given in a frank manner as possible. As an example of the kind of ambiguous comments that may be obtained if the proper climate is not established and the proper questions asked, in one small group showing of a new consumer education program, a respondent answered the question: "What did you like most about the program?" by saying, "The color was nice."

Although the comments described above are very necessary to the developers and the presenters of the subject matter, objective data, such as numbers of listeners or viewers, ethnic mixes, number of responses to questionnaires, evidence of behavior change, etc. are important to higher levels of administration and to funding agencies. Numbers are needed at these levels that can be added together to serve state and national accountability needs. This type of evaluation data is important to individual educators because this information is used to justify budgets and to show results from programs to legislators and others who provide funding for programs.

EVALUATION COSTS. Measurement of the efficiency and effectiveness of electronic media programs is difficult and requires the investment of resources. Although this may seem self-evident, seldom are funds budgeted for evaluation. This is true, not only at the administrative level, but also for the individual educator. Time and resources must be allocated to evaluation planning, data collection and analyzation, and to the evaluation report if electronic media programs are to be consistently evaluated and the information used therefrom to improve them.

Some of the costs to be planned for in evaluation include professional and clerical salaries, salaries for interviewers, postage and printing for surveys, telephone charges, data analysis by computer, travel, and consultants. Sometimes it may be necessary to offer inducements to respondents to improve response rates. Educational granting programs often set aside five-to-ten percent of total project costs for evaluation. Whether or not this is an appropriate percentage range depends on the project and the evaluation desired.

Evaluation costs can be minimized by carefully planning the evaluation and realistically deciding exactly what data will be required and how the data will be collected. Evaluation costs should be budgeted just as other phases of the program are budgeted. Often, budget limitations will determine the limitations of the evaluation. Elaborate evaluation plans may fail to provide the necessary information if lack of funds prevents completion. It is better to carry a limited evaluation to fruition than to collect masses of data and not be able to afford the computer time for analysis. Costs may be reduced if volunteers are willing to collect data for evaluations. However, they must be properly trained to collect data in a consistent manner. Groups such as homemakers clubs and 4-H clubs frequently may be able to collect data in conjunction with other activities, such as demonstrations, fairs, public service activities, etc. However, time must be allocated to careful supervision and training.

DATA COLLECTION. Data collection is a continuous process that begins the moment a project comes under consideration. There is a tendency to gather too much data and not enough. The evaluation plan is the key to effective data gathering. Keep the data collected pointed toward specific needs identified at the onset of the project. Determine what information you will need as an educator and then list the information required at the progressively higher levels of administration. It is usually unnecessary to use exotic data gathering techniques for most projects, however, this does not rule out imaginative approaches to the collection of data. The following are considerations in determining data requirements:

1. List the general program objectives and the specific objectives of the electronic media program.
2. List the data required to establish baselines for objectives.
3. List the data required to measure if the objectives have been met.
4. List any data required to measure the acceptability of the material for the medium. Example: Are the materials acceptable to the broadcast outlets—correct format, acceptable quality, timeliness, etc.
5. List the data required for federal, state and local reports. These requirements should be enumerated at the state level and distributed to the individual agents. Mechanisms for collecting this data may also be initiated at the state level.
6. List the data required to determine the efficiency of the project—time and money spent, problems encountered, repeated work, etc. The

availability of this type of information is critical for high technology programs such as film or television.

7. Set time limits and schedules for data collection and for completion of the evaluation. List deadlines for reports and events for which reports will be required: advisory council meetings, program reviews, budgeting processes, legislative sessions, federal deadlines, terminal report due dates, etc.

There are a number of methods of data collection that may be used with most electronic media educational programs. The use of these should become fairly automatic and their effective use should will provide data to provide a well-rounded picture of what actually took place in each project.

1. Keep accurate and complete records of total program processes. Although the Extension Service is famous for reports and record keeping, the simple diary is probably the most neglected evaluation method. In high technology educational programming it becomes very difficult to avoid making the same mistake twice. A detailed diary can avoid this possibility.

   The educator who uses electronic media soon learns that this process is plagued with gremlins who sneak in to cause batteries to go dead, lights to burn out and interviewees to clam up. A good diary can note these problems along with immediate thoughts as to what might be done to prevent a recurrence in the future. Although it may seem wasteful when budgets are tight, a script person making notes during production can prevent many errors in matching scenes and noting problems.

   It may be advantageous to keep a personal, confidential diary that will permit frank and direct comments. This type of diary also allows expression of thoughts that might be misunderstood by others but are of great value to the educator. Later, important points can be extracted for the public record.

   There is usually a significant time duration in the preparation of major educational media projects and it is often difficult to remember from one project to another just what worked well and what the

problems were. The personal diary as well as official records of letters, proposals, purchase orders, hiring documents, actual time and cost figures provide a basis for repeating a process with a good, sound foundation.

The file on a project should also contain any compliments and complaints about a project, including those expressed verbally. Comments by those involved in a project are often of great value on subsequent projects.

The evaluation plans and the steps actually taken to carry out those plans should be included and be fully detailed. Often the grand evaluations listed in educational plans and proposals never take place. Evaluation results can be more clearly understood if the process is well documented.

Procrastination is the most deadly trap in evaluation and record keeping. Keep diaries and files up-to-date on a daily basis. Memories are surprisingly short. The time and pain required to complete a difficult project often become shorter and more pleasant with passing time and you may find that you have again underestimated the time and difficulty of a project.

2. Arrange for adequate financial and personnel records. Accounts should be set up to permit accurate recording not just of supplies and out-of-pocket expenses, but also professional and other staff time and expenses. Special accounts may be required to accurately reflect resources used for the project

3. Use unobtrusive measures. These are measures that can be used to evaluate a program without requiring the cooperation of the correspondent and without having an effect on the response.[1] A clever example of unobtrusive measures is the use of nose prints to measure the popularity of museum exhibits and to determine the approximate age of the viewers. Each night after the museum closed, the glass in front of some of the exhibits was dusted so that the number of nose prints could be counted and the height of them measured.[2]

[1]Eugene J. Webb, et al, *Unobtrusive Measures: Nonreactive Research in the Social Sciences* (Chicago: Rand McNally, 1966), p. 2.

[2]Ibid., p. 45

Many types of Extension programs can be evaluated using unobtrusive measures. A log of telephone calls by subject is one measure of this type. Keying a public service message so that the responses that it generates are identifiable is another method that was discussed earlier. A general increase in demand for a publication may also be an evaluation of the effectiveness of a program discussing that subject. Attendance at a workshop advertised on radio or television is another evaluation of this type.

Imagination is the key to the use of unobtrusive measures. Pat Barker, agent for the Cooperative Extension Service, University of Alaska, in Bethel, Alaska, regularly includes an unusual ingredient in her television shows on nutrition. She then asks clerks in the three stores in town to record how many purchases of that ingredient were made following the broadcast.

4. Surveys should be considered for usefulness in any evaluation plan. Timing, sampling and questionnaire content are critical to the success of a survey effort. A baseline is desireable so a survey should, ideally, be taken before the project begins. This initial survey can also help to identify the characteristics of the intended audience as well as to determine what the knowledge levels and attitudes of the audience may be.

Writing of questionnaires can be difficult. Preparing a set of questions that will be interpreted unambiguously by a group of interviewees with widely varying backgrounds is extremely challenging. Field testing will help assure clarity and relevance of questionnaires. Bias should also be carefully avoided. There are a number of good books available that deal with the problem of survey preparation. After 30 years, *Surveys, Polls, and Samples: Practical Procedures* by Mildred Parten[1] is still a valuable guide.

Use a variety of survey methods. Mix telephone surveys with mall surveys and door-to-door in-person interviews. It will become evident when we discuss statistical analysis that a series of small surveys has greater reliability than a single survey.

[1]Mildred Parten, *Surveys, Polls, and Samples: Practical Procedures* (New York: Harper and Brothers, 1950).

Random sampling techniques make it possible to collect defensible data on participation and results with relatively small samples. A true random sample taken from a population will give everyone in the population an equal chance at being chosen. Therefore all segments of the population have an equal chance at representation in the results. For many types of statistical analysis, a sample of 30 or less is sufficient to provide a reasonable approximation of the characteristics of the total population, providing randomness is assured. Repeated small samples taken over time will provide an even closer approximation of the population characteristics.

Random samples can be selected in many ways. In a small village, houses to be contacted may be selected by selecting a starting point (north side, west side) by drawing slips out of a hat. Which houses to contact can also be determined by drawing the number of the house (1st, 2nd, 3rd) at which the survey will start. If thirty contacts are required and there are 100 families in the village, then every third house will be contacted. Call-backs are required at different times of the day so that those who are not home at a given time are also given a chance to participate. Regardless of what type of survey is being conducted, diligence is required to be sure all those chosen to be part of the sample are contacted.

If you plan to survey people who come to a common meeting place, such as a post office, store, or shopping mall, select the day and time at random. If more than one location is possible, select the location at random also. If more people will be contacted than can be conveniently surveyed, throw a single die to determine if every third, fifth or second person should be surveyed. Random number tables may also be used in determining the intervals at which people will be selected to participate.

Telephone surveys are a convenient way to contact large numbers of people where efficient telephone systems exist. Randomness can be assured in a number of ways. Some telephone companies will assist in drawing random samples by telling you which blocks of numbers have been assigned. The computer can then be used to draw a sample of a given size from that list of numbers. However, there may be many unanswered calls because of businesses that may not be functioning in

the evening or because of temporarily unassigned numbers. This system also includes unlisted numbers, which is good because it includes more of the population, but bad because many of the people contacted may be irate.

Another method is to stick a pin in a telephone book and call all the numbers the pin passes through. A random number table also may be used to select numbers to be called or a die may be tossed to select pages and the interval at which numbers are selected.

Once a random sample has been taken, data obtained from the sample may be generalized to the whole population. In other words, if your data shows that 10% of your sample has seen your television presentation and you have a potential audience of 50,000 people, then approximately 5000 people saw your program. The limits of accuracy for this extrapolation may be estimated statistically. Statistical analysis will be discussed later. Random sampling permits numbers to be applied to the evaluation—numbers which may be defended if necesary.

5. A wealth of information regarding the use and audience of your message can be obtained from broadcast stations, cable systems, satellite systems and others who distribute your materials. Most stations are willing to return information on the timing and number of plays if a self-addressed card is enclosed. Keep requests simple, however. Avoid asking for too much data. Usage data, particularly for public service messages is usually provided in terms of how many times the materials were used and at what time of day. Sometimes stations will indicate that materials were played "run-of-station," for a specified length of time. This means that the materials were rotated throughout the broadcast day, playing in all time periods.

   Sometimes it is more difficult to find out why something was not used, but careful evaluation of usage reports provided by stations may point out reasons for not using the materials. Personal contacts with program managers may be required to provide definitive information. Media usage information will sometimes provide explanations when other evaluation techniques indicate a lack of program effectiveness which may have resulted because the materials were never broadcast.

Broadcasting Cable Yearbook[1], mentioned earlier, is available in most libraries or by subscription, and contains audience counts and technical data on nearly every broadcast station in the United States. This data forms the basis for advertising rates and is considered to be valid in determining audience counts. Many stations have also conducted surveys which estimate the audience at a given time. These figures can help to provide a picture not only of the number of people in the audience, but often will tell something of the composition of the audience by age, socio-economic levels, etc.

PROVIDE FOR PRE-BROADCAST REVIEWS AND FOR PILOT PREVIEWS. Thorough reviews are important at each stage of the production process. Script-writing is a critical step in the successful production of radio and television. However, it is difficult to predict the success of a script in meeting program objectives or in drawing and holding an audience. The evaluator may assist by assuring that reviews of the script are carried out properly. Experts in radio and television instruction, including those at the producing facility can assist in evaluating scripts. Subject-matter specialists should review the content also.

Special effects frequently add significantly to the cost of production and requests for effects should be carefully evaluated to assure that they are required to achieve program objectives. This does not imply that some special effects are not necessary to obtain audience interest and attention.

Once program contents and treatments have been refined, a pilot presentation should be produced. The pilot should be representative of program content and treatment. If the first presentation in a series does not meet these criteria, then another segment should be selected.

Complete records should be kept of the pilot development costs in time and money to provide a check on costs estimated in program budgets. Pilot development costs will normally be more than regular production, but if pilot costs are a factor of two or more higher than those budgeted, it may be necessary to make adjustments in treatment or number of segments to stay within budget. Once any part of a series has been broadcast, it becomes difficult to make major changes in treatment and format.

[1]Broadcast Publications Inc.

The pilot presentation should be shown to a number of small groups selected to represent the target audience. The atmosphere at each preview should be such that free exchange of critical comments is promoted. It seems advisable not to have those who are on camera present at the previews. Since critical comments are most valuable at this stage, it may be helpful for the presenter at the preview to be openly critical. This approach may generate some unwarranted comments, but usually evaluators can judge which comments can be ignored. It is important at this stage in production to provide every opportunity for weaknesses in the program to be noted and corrected.

The technical quality of the pilot should be reviewed with a variety of broadcast station personnel to assure that some aspect of the program will not interfere with the acceptability of the series as determined by the gatekeepers in the broadcast stations.

USE PROGRAM CONTACTS TO MEASURE ELECTRONIC MEDIA EFFECTIVENESS. As was stated earlier, electronic media should be part of the total educational program. Therefore, the direct contacts with workshop participants, visitors, telephone contacts, etc., may be used to evaluate electronic media efforts. Consider, if you will, a program in food preservation. The need for such a program has been assessed and it has been determined that botulism is a serious problem because pressure canning techniques are not being used with low acid foods. The first stage of the program is a series of radio spots describing the dangers of botulism in improperly canned foods and offering a publication on canning. The spots list a special box number and a telephone number not normally used by the public to request materials. Requests for the materials are tabulated and questionnaires are mailed to a random sample of those who asked for the publications.

The next stage is a series of radio and television spots, as well as newspaper ads, announcing a workshop on home canning. During the workshop a survey is taken to determine, as well as to evaluate the workshop, how the participants became aware of the workshop. Evaluation of behavioral changes resulting from the spots and from the workshop may be estimated by comparing the results of followup surveys mailed to workshop participants with surveys mailed to people who asked for publications, but did not attend a workshop. If an instructional program on the same subject is broadcast via television which also offers publications obtainable from a special address, the results of that process also may be

compared. An additional valuable step would be to send the same survey to a random sample of the public to provide a control group. The results of this evaluation process will be to provide defensible information regarding the effectiveness of the radio spots as means of getting people to gain additional information and the effectiveness of the publications and the workshops in achieving a change in behavior.

Each time a personal contact is made, that contact should be used to measure the effectiveness of mass media programs by inquiring as to why they decided to make a personal contact. Almost all Extension educators require some form of evaluation from those who participate in Extension activivities. These evaluation forms can easily include a few questions relating to electronic media programs.

A major function of electronic media programs is to create an awareness of a problem and generate some action to learn more about the problem. This action then becomes an evaluation of the electronic media message. These messages should be coded by using a special address or telephone number or other key word that respondents are asked to request, to permit identification of actions resulting from that message. As an example, a message on pesticide safety might include a tag which says, "For more information on Pesticide Safety, call 479-7214 and ask for 'pests'." These requests are then tabulated to determine how many responses resulted from the message. Commercial advertising uses this method constantly. A newspaper ad may offer a low sale price with a coupon in the ad. This enables the store to measure how many sales are a result of the ad. In his radio advertisements, radio personality Paul Harvey often says, "Tell them Paul Harvey sent you."

COST AS A BASIS FOR EVALUATION. Every educational project has a cost associated with it, even though these costs may be hidden or absorbed in other programs. Another truth that must be recognized is that resources are always finite and that resources used for one program always draw on resources that might have been used for another program.

Popham takes the approach that costs are benefits lost.[1] His premise is that whenever resources are used for a project, these resources are not available for another project. This approach can even be applied to funds obtained specifically for a project through a grant. Could those have been obtained for a different project? Is the project the best use of funds, facilities and people?

[1]Popham, *Educational Evaluation*, P. 268.

If costs are viewed as benefits lost, then the evaluation must include comparable costs of alternate projects and alternate methods of program delivery. A cost analysis will probably be meaningless to administrators unless comparable costs of alternate projects or delivery systems are available. It is important to make sure that costs of the two projects are truly comparable and contain costs developed on the same basis. As an example, it would be unfair to include the cost of facilities, studios, equipment, etc., for a television production, and compare that to the cost of classroom delivery and not include the space costs for the room or the cost of furniture, blackboards, etc.

A cost element frequently overlooked is the cost to the participant or student. Since the Cooperative Extension Service has the charge to provide practical education to the people in a convenient and usable manner, with low income people often identified as target audiences, these costs often determine whether someone can take advantage of Extension services. When participants must travel to obtain services or take time away from work or business to participate in workshops and other activities, these costs also should be taken into consideration. Participant costs should be counted when comparing costs of competing projects.

Another cost factor that is important is recurring costs versus nonrecurring costs. The concept of fixed and variable costs is also important in evaluation of mass media programs. Most of these programs have a high element of fixed costs. The number of people watching makes little difference in the costs of operating a transmitter or in the costs of producing a program. If personal visits are involved, then the fixed costs are low and the variable costs, travel, subsistence, etc. are high. The cost per contact is often used as a method of comparing total fixed and variable costs of delivery systems, however, other factors, such as the quality of the contact—personal or impersonal—must also be considered.

Data Analysis

The analysis of the data obtained during the evaluation of a project can be an unmanageable task or it can be relatively simple, depending on how well-planned the data-gathering efforts were and how complex the data requirements. In many instances, descriptive statistics—graphs, diagrams, tables, will be sufficient. The analysis should be planned for presentation in the evaluation report and should provide a clear picture of the process and the results of the project. The use of statistical analysis should be confined to those areas where judgments of program

success hinge on statistically significant changes. Regardless of the depth of treatment, care should be taken to translate the results of the analysis into lay terms in the evaluation report. The analysis should provide the decisionmakers with the information they need and in a form they can understand.

This paper will not attempt to explore the subject of statistics with any degree of depth. There are many texts dealing with statistics and educational statistics. Please refer to these texts for the procedures and formulas for the analyses described.

The evaluator is concerned with showing on a practical level whether an educational program is accomplishing what it was designed to do. Statistics help the evaluator describe a program and its outcomes in three ways: (1) Statistics summarize information into usable numbers that accurately communicates the direction and characteristics of the data through measures of central tendency and measures of variability. Descriptive statistics such as graphs, charts, and tables also summarize data and convert it to visual forms. (2) Statistics help to determine if changes observed are the results of chance or if real changes occurred. These are referred to as tests of significance. (3) Statistics help to determine the amount of relationship between sets of data or correlation. Correlation tells you the degree to which sets of data vary together.[1]

The summary measures of mean, median, mode, range, and standard deviation should be applied whenever appropriate. Graphs,diagrams, charts and tables should also be used. Percentages of responses are also easily applied and easy to understand by those reading the reports. However, more definitive methods of analysis may be necessary to rule against chance factors accounting for what appears to be good data.

SIGNIFICANCE TESTS. A commonly used test of significance which compares the means of two independent samples is Student's *t* test[2]. This test may be used to compare the means of scores on two sets of subjects who, for example, were presented with different educational programs on the same subject. More elaborate methods are Analysis of Variance (ANOVA)[3], and covariance [4], which

[1]Carol Taylor Fitzgibbon and Lynn Lyons Morris, *How to Calculate Statistics* (Beverly Hills: Sage Publications, 1978), p. 11

[2]Robert R. Johnson, *Elementary Statistics*, 2nd ed., (North Scituate, Massachusetts: Duxbury Press, 1975), p. 318.

[3]Ibid. p. 450.

[4]Ibid. p. 474.

may be used with more than one variable and more than two groups. The Mann-Whitney *U* Test[1] may be used with ranked data from two independent samples. The binomial sign test may be used with categorical data from two related samples, such as when the same students have taken pre- and posttests and the data are compared for direction of change. Please refer to a good statistics text such as Robert Johnson's *Elementary Statistics,* Duxbury Press, North Scituate, Massachusetts, 1976, or *Educational Statistics,* W. James Popham and Kenneth A. Sirotnik, 2nd Edition, Harper & Row, New York, 1973. These textbooks contain all the tables required to use these statistical treatments.

CONFIDENCE INTERVALS. This treatment may have more application in mass media education than in other educational situations. If a survey is taken by telephone following a television broadcast and 25% of those contacted were watching, how sure can we be that the true percentage is 25%? Using confidence intervals gives a reasonably, say 95%, sure range within which we can expect to find the actual percentage of people watching.[2]

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[1]Ibid. p. 522.

[2]Ibid. p. 328.

Conclusions

The Cooperative Extension Service, as the unit of the land-grant university system charged with the delivery of practical education to the people in a form they can use, when they want it and where they want it, does not have a choice regarding whether educational programs are to be evaluated. Evaluation has been mandated by the U. S. Department of Agriculture and other funding agencies and by many of the levels of administration under which Extension operates. The choice to be made is how and by whom this evaluation is to be conducted. The various levels and types of evaluation and reports requested by outside agencies have culminated in a maze of information requests and a series of highly uncoordinated attempts to collect data and sort it into useable information. This approach has caused many Extension educators to view evaluation attempts as totally futile and just another impediment to help keep them from accomplishing their mission of providing practical information services to the people. With this attitude in the minds of the principal data gathering agents, it is easy to understand why good evaluations of Extension efforts, particularly in electronic media education, are relatively rare.

The solution to this problem is to change the approach to evaluation from one of meeting the needs of outside agencies to one of meeting the needs of individual educators first and then meeting the needs of other agencies through spinoffs from the original data gathering process. Evaluation of electronic media programs is so important to individual educators that they cannot effectively operate such programs without systems that provide accurate and timely feedback from participants. Such systems, if well planned, can easily meet the needs of other interested parties, as well as those of the educator, if those needs are recognized in advance and plans are made to meet those needs. Each successive layer of administration requires less detail to serve its purposes. Therefore, data obtained to meet the needs of the educator can be summarized in different ways to satisfy the needs of the other agencies who request information.

A Practical Approach to Evaluation

A review of the evaluation process and the various examples of evaluations described in the previous sections may seem very discouraging to the lone Extension agent with only a part-time secretary for moral support. Of course the individual educator cannot interview 1200 children, their parents and teachers, as well as do a complete content analysis of 3 hours of film as was done for the

Sesame Street evaluations. What we can do is to utilize some of their techniques to perform valid evaluations on a scale we can manage with our available resources. We may be able to work out a few methods of our own that will work in our own particular situations.

Regardless of how difficult it may be, Extension educators must learn all they can about how well our media programs are working to meet the objectives of Extension education programs. Electronic media programs will never be totally successful as a delivery mechanism until educational materials can be presented with a reasonable level of knowledge of the effects of those materials on those who receive them.

Unfortunately, there are few good, successful, small-scale evaluations of electronic media programs which can be used for models. There are even fewer evaluations of any size that have done what the *Mulligan Stew* and the *Sesame Street* evaluations have done—actually measure a behavioral change resulting from the program. If the need for evaluation and reporting of the results was not so critical, not just for funding and administrative purposes, but for effective utilization of electronic media as a teaching tool, it would be very easy to say that effective evaluation is impossible and give up. I believe that we can and must make it possible. The only way to accomplish such a task is the way any difficult task gets done—break it down into small steps and proceed to do the best that can be done with the resources available. The following is an outline of points to consider in preparing to conduct an evaluation:

NEEDS ASSESSMENT AND DEVELOPMENT OF OBJECTIVES

1. Determine what the needs are of the client group to be served.
2. Obtain baseline data describing conditions at the beginning of the program.
3. Develop measurable objectives that fulfill or alleviate the needs of the projected target audience.

PROGRAM PLANNING

1. Identify the channels to be used as delivery systems for the educational program.
2. Consider the electronic media efforts as part of a larger educational program and evaluate the total program.
3. Develop an evaluation plan that is practical and that will provide useful information for decision-making by the educator, administrators, funding agencies and for the public. List the information required at each level. Table 3 lists some of the types of information required at the different levels of administration.

Table 3. Evaluation Information Requirements

Type of Information	Teacher	Program Management	Public and Funding Agencies
Characteristics of Audience			
Age and sex	✓	✓	✓
Interests	✓		
Location	✓	✓	
Socio-economic status	✓	✓	✓
Present information levels	✓		
Possible motivation for change	✓		
Other sources of information	✓		
Urgency of felt need for information	✓		
Audience reactions to program	✓		
Characteristics of Medium			
Potential audience size	✓	✓	
Information gathering process of audience	✓		
Requirements for entry into medium	✓		
Reliability of medium	✓	✓	
Skills & manpower required for delivery	✓	✓	
Equipment required for delivery	✓	✓	
Efficiency of Program			
Cost per contact	✓	✓	✓
Effective use of resources	✓	✓	✓
Evidence of waste	✓	✓	✓
Measurable goals stated clearly	✓	✓	✓
Effectiveness of Program			
Number of contacts	✓	✓	✓
Evidence of change produced by program	✓	✓	✓
Meets objectives	✓	✓	✓
Supports Extension program goals	✓	✓	
Presents desired image for Extension	✓	✓	
Program meets goals of funding agency	✓	✓	✓

4. Integrate the evaluation into the Extension educational plan development process.
5. Consider data presently being collected and select additional data collection systems as needed to meet the objectives of the evaluation.

Formative Evaluation

1. Prioritize the phases of the project that will be evaluated. A minimum level of evaluation should be conducted on all phases.
2. Arrange for complete records to be kept of financial resources, materials and time expended during the course of the project.
3. Keep a detailed, confidential diary of the course of the project.
4. Review program concepts at the outset with subject-matter specialists, outside experts and samples of targeted audience.
5. Review scripts with subject-matter specialists and with television production experts. Check script requirements against capabilities of production facility.
6. Arrange for previews of pilot production by small groups selected to represent the target audience. Create an atmosphere conducive to critical comments. Propose adjustments in program content and treatment.
7. Review technical quality of pilot with personnel from a number of broadcast stations. Correct any problems that might interfere with the acceptability of the program for broadcast.
8. Maintain close coordination with subject-matter specialists and field agents during formative stages. Seek critical comments to assure that programs meet their expectations.

Summative Evaluation

1. Plan to measure changes in attitudes and behavior in as many ways as is practical.
2. Provide for controls and comparisons to validate and increase the credibility of the results.
3. Use representative sampling techniques.
4. Utilize unobtrusive measures whenever possible.
5. Use program contacts to measure effectiveness of electronic media efforts.

6. Set time limits and schedules for data collection and for completion of the evaluation.
7. Be willing to analyze the data and make clear, honest recommendations that can lead to program improvement.
8. Know the audience for the evaluation report and provide information and recommendations that are useful and helpful to those whom you want to read it.
9. Consider the means of delivery of the final evaluation report and select systems that will obtain the attention of the audience desired.
10. Consider the ethics of the situation and prepare a report that is not only correct and objective, but will produce the desired action or reaction in the intended audience.

Evaluation of electronic media educational programs is never easy. All of the imagination and resources available must be utilized to learn everything possible about how programs are working and to replace the feedback the accomplished classroom teacher depends upon to adapt his/her presentations to those who attend classes. We may never be able to obtain this highest quality feedback, but we can learn to evaluate better so that we can teach better.

APPENDIX A
Television preview
Questionnaire

QUESTIONNAIRE - - CONSUMER EDUCATION SERIES

Group Name _____

1. What was the major point or points of the program? _____

_____

2. Did you learn anything that was new? _____

_____

3. Do you plan to use anything you learned in the program?

Yes_____ No_____ If yes, what and how...

_____

_____

4. Which part of the program did you like most? _____

Why? Because it was funny? _____
Because of the content? _____
Because of the person or character? _____
Other reasons _____

5. What could have been done better or differently? _____

_____

6. Did the program hold your interest? _____

7. If not, why? _____

_____

8. Was the program in any way offensive? _____

_____

APPENDIX B
Telephone Survey
Procedures

CACHE YOUR CASH -- SURVEY INSTRUCTIONS

GOALS: (1) To determine how many people in Fairbanks are watching Cache Your Cash on December 6, 1977 and, (2) how effective was the program in meeting its educational objectives.

1. You have been given a list of phone numbers that were selected at random by the computer. This list contains business phones, unlisted phones and unassigned numbers. Write about 10 or 15 of these numbers on the forms provided. You can write more numbers on while you are waiting for people to answer.

2. Please follow the procedures outlined as closely as possible. Variations in approach may affect the validity of the data collected. Calls will be made beginning at 7:30 and will finish at 8:30.

3. Put the time on the form while waiting for someone to answer.

4. Ask for an adult if a child answers. If no adult is home, ask the child if they appear to be competent to answer.

5. Try to follow the wording of the form almost exactly-- be friendly but businesslike and quick.

6. If their first answer is no, see if you can't change their minds. ("It will take only a couple of minutes to answer.)

7. Do not identify yourself as representing the Cooperative Extension Service until after the questions have been answered, unless someone insists. Explain why we are doing the survey if they ask. Explain that telling them who is doing the survey before they answer the questions may bias their answers.

8. If anyone is uncertain what channel they were watching, ask the name of the program, if they don't remember, tell them thanks and call another number.

9. If a number is busy, place the sheet down 3 or 4 sheets in the pile and call them back in a few minutes. If it's still busy, put it down a few sheets and call it again. Mark down how many times you try.

10. Try to call as many numbers as possible. Write down numbers and make notes while you are waiting for the phone to ring. Start dialing as soon as you finish with a call.

CES

U of A

Number called _____ Time_____
Busy _____ Disconnected_____ Did not Answer_____
(Let ring for 30 seconds.)

1. Hello, I've dialed your number at random as part of a T. V. audience survey. Would you answer a few quick questions about the program you were watching between 7 and 7:30 tonight? Yes____ No____

2. How many adults were watching T. V. between 7:00 and 7:30 pm? _____

3. How many children were watching during that time? _____

4. What channel(s) were being watched 2_____ 9____ 11____

(Program names_____ _____

5. If not watching Channel 9: "Thank you very much for your cooperation." Identify yourself and Cooperative Extension Service, University of Alaska.

6. If an adult was watching Channel 9 or an older child, ask:

1. What was the major point or points of the program_____

_____

2. Did you learn anything that was new to you? _____

_____

3. Do you plan to use anything you learned from the program?

Yes _____ No_____ If yes, what and how_____

_____

4. Which part of the program did you like most? or, what do you remember best about the program?_____

_____

5. Did the program hold your interest? Yes____ No_____

6. Why?_____

7. Was the program in any way offensive? _____

_____

8. Thank you for your cooperation, I'm _____ representing the Cooperative Extension Service.

If the person was not watching Channel 9, ask:

One more question: Have you ever had any contact with Cooperative Extension programs such as 4-H, agriculture, gardening, housing, nutrition? (Use tally mark by each for later totalling).

Yes:

No:

If yes - What kind of contact?

Meetings or classes
Publications
Newspaper articles
Telephone
Personal visit
Television
Radio

What Subject?

4-H
Home Economics
Agriculture
Gardening
Housing
Other

Thank you for your cooperation, I'm _____ for Cooperative Extension Service, University of Alaska.

"CACHE YOUR CASH" VIEWER SURVEY - FAIRBANKS

On December 13, 1977, a telephone survey was conducted to determine viewership of the small appliance program of the "Cache Your Cash" consumer education series produced by KUAC-TV with content input from Cooperative Extension Service.

Nine people called approximately 40 numbers each from 7:30 p.m. to 9:00 p.m. that evening. Telephone numbers were selected at random from the 452-456-479 exchanges in Fairbanks. Four hundred numbers were selected and 353 numbers were actually called. Only 158 calls were completed. The other 195 numbers were disconnected, unassigned or did not answer. A few (31) were busy and were not completed by call-backs. See Table I.

Each of the people contacted were asked if their television was on, and if it was on, how many adults and children were watching and what channel(s) they were watching. A surprising 58 households or 37% of those contacted said their television was not on or that they had no television. An additional 10 households said the TV was on, but they were not watching closely enough to identify the program. Ninety households or 57% of those contacted were watching TV. In those 90 households, 131 adults and 61 children or a total of 192 people were watching. Channel 2's "Charlie's Angels" had 116 viewers or 60%. Channel 11 with Donny & Marie had 70 viewers for 37%. KUAC had 6 viewers or 3%.

Only 3 questionnaires on the "Cache Your Cash" program were completed. Comments obtained were favorable but little helpful information was gathered.

Since it was anticipated that interviews would be obtained only from a small percentage of calls, additional questions were asked of those not watching Channel 9 to obtain some evidence of those who are aware of the Cooperative Extension Service and its programs and what types of experiences with CES are most widespread. Eighty-seven people were asked if they had had contact with CES and 27 or 31% of these said they had. Publications were the most frequent contact, followed by meetings or classes. See Table II.

It should be noted that frequently the respondent had not heard of Extension but had seen bulletins or had children in 4-H. The connection between CES and the services provided were not clear in many cases.

The questionnaires on the "Cache Your Cash" program will be considered with other questionnaires collected from viewers in small group settings.

TABLE 1

Calls completed	158		45%
Calls not completed	195		
TOTAL ATTEMPTS		353	
Households watching	90		57%
Households not watching	58		37%
TV on but not watching	10		6%
Adults watching	131		
Children watching	61		
TOTAL WATCHERS		192	
Watching Channel 2	116		60%
Watching Channel 9	6		3.1%
Watching Channel 11	70		37%

TABLE II

Have had contact with Cooperative Extension programs such as 4-H, agriculture, gardening, housing, nutrition?

Yes: 27 (31%)

No: 60

What kind of contact?

Meetings or classes	10
Publications	18
Newspaper articles	6
Telephone	1
Personal visit	4
Television	4
Radio	3

What Subject?

4-H	7
Home Economics	9
Agriculture	3
Gardening	7
Housing	7
Other	2

APPENDIX C
Professional Personnel
Questionnaire

EVALUATION OF CONSUMER EDUCATION PROGRAMMING

1. Does program meet the overall objectives of the series?

   a. Provide background in which to judge products offered via national advertising and available to Alaskans,

   b. Identify methods of calculating true costs of several alternative choices of consumer goods,

   c. Provide skills development training in the use of credit, utilization of money handling services such as banks, credit unions, etc., and

   d. Provide information concerning, and solutions to, consumer problems somewhat unique to Alaska.

2. Does this program meet the objectives for which it was developed?

   OBJECTIVES:

3. Is program content technically correct? Do specialists and consultants feel good about content?

4. Is program content based on basic principles rather than changing styles or conditions?

5. Is program content and production appropriate for audience?

5. Cont.

   a. Do production techniques enhance communication of content to the viewers?

   b. Is humor appropriate for the audience?

   c. Does the program maintain the attention of the viewers?

   d. Is the pacing of the program appropriate and pleasing?

   e. Is the difficulty level of content and presentation appropriate for the audience?

6. Do technical problems affect the suitability of the program for broadcasting and distribution?

   a. Sound quality and levels

   b. Visual Quality and levels

   c. Lighting

   d. Editing

6. Cont.

   e. Acting and presentation

   f. Pacing and timing

7. Are major objectives communicated to the audience in a manner that encourages adoption?

   a. Does audience recognize major points?

   b. Does audience feel that they have learned something new?

   c. Does the audience feel its time was well spent viewing the program?

   d. Can the information obtained be applied to the viewer's needs?

8. When is the best time for the program to be aired or presented?

9. What is the audience?

   Urban
   Rural
   Both
   Either
   Geographic or climatic area

10. When will the program become obsolete?

EVALUATION DATA COLLECTION

Demographic Data

No. of participants_____ Age 5-18_____ 19-30_____ 30+_____

Background: _____

Time in Alaska: under 1 yr_____ 1-5 yrs_____ over 5_____

Rural (under 5,000 in area)_____ Urban_____ Male_____ Female____

Native Alaskan_____ White_____ Black_____ Other_____

Group name or type of group_____

Evaluation Data

Percent

1. Number who selected one or more of objectives_____ _____

   List objectives and no. of mentions_____

2. Number who found something new_____ _____

   List new information and times listed_____

   _____

   _____

3. Number who plan to use information learned_____ _____

   List items and number of mentions_____

   _____

4. List parts of program preferred and times mentioned_____

   _____

   Funny_____
   Content_____
   Character_____
   Other_____

5. List suggestions_____

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APPENDIX D
Film Preview
Questionnaire

Preliminary Evaluation

Gardening Is Great in Alaska or *Grow Your Own Groceries*

Note: ***This film is an answer or check print. Some additional voice level correction is planned. Your help is requested in evaluating the film and improving it before final prints are made.***

	Yes	No
Does the film keep your interest and attention?	☐	☐
Did you like the cartoons?	☐	☐
Did you like the music?	☐	☐
Could you understand what was said?	☐	☐
Could you see what the actors were doing?	☐	☐
Were the following subjects covered adequately?		
Seed selection, planning and Seed starting	☐	☐
Clearing, seedbed preparation and planting	☐	☐
Soil testing, insect control and thinning	☐	☐
Weeding, safety, harvesting and storage	☐	☐
Are the language and the demonstrations appropriate for Alaskans who have not gardened before?	☐	☐
Where do you live? (town or village)_____		
Have you ever gardened in Alaska before?	☐	☐
If yes, did the film provide enough information?	☐	☐
If no, do you think you will try a garden of your own?	☐	☐

Please list other groups who might want to see the film_____
_____
_____

Comments_____
_____
_____

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